An Address
ON
CARDIAC MOTION AS REVEALED BY THE VIVISECTION OF DISEASE,

Delivered before the Æsculapian Society of London

BY ALEXANDER MORISON, M.D. EDIN., F.R.C.P. LOND. & EDIN.,
PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL.

GENTLEMEN,—It is with no ordinary emotion that I acknowledge the honour you have done me in electing me for the third time President of the Æsculapian Society. In my first term I was still in the twenties, when elected a second time I had entered the forties, and now I am deep in the fifties. It is 28 years since the Æsculapian Society was founded and I had the honour of being its first president. Such a period cannot pass in the lifetime of any of us without witnessing changes in every sphere of human activity. It has not passed without such in our society, in our profession, and in the progress of the science and art of medicine.

To discuss with any fulness the changes which are taking place in our profession scientifically and economically would absorb more than all the time at my disposal for dealing with the topic which I have chosen for this occasion and to which I shall come with as little delay as possible. I may refer, however, to the influence which has been exercised upon the economic situation in the profession by the growth of specialism and the development of medicine and surgery generally. The time was sure to come when the boundaries which had for long defined the spheres of the general practitioner and consultant, particularly in England, would become less distinct, owing to the very natural process of increase of knowledge on the part of the generalist and the popular preference in many instances for the services of the specialist. In other words, while the education and potential status of the practitioner had improved the popular preference for the advice of "physicians" so-called *par excellence* remained. These indisputable facts have at times been the cause of some misunderstanding between practitioners and consultants. Personally, I shall scarcely be accused of wishing to throw any impediment in the way of the full development of the generalist in any direction in which he may desire to grow. The process of development from the general to the particular I believe to be rational and desirable, but custom and the shortness of life have made it not an easy one, and those who make the transition must do so at their own risk and without expecting much encouragement either from those among whom their life has till then been passed or from those among whom their more particular work is taking them. But the conception of the unity of the profession, which has always been the creed of Æsculapians, must be entertained and perfect freedom of individual initiative preserved if the transition is frequently to be effected. On the other hand, I hope Æsculapians will agree with me that any caucus government of a liberal profession, consisting necessarily of free men who have the honour of their profession at heart—any unjust compulsory control that is of the individual by "warning notices" or otherwise—is not to be tolerated for a moment, however numerous the units who may attempt to exercise such coercion and however influential the leaders who may foster such a form of despotism, whether among generalists or specialists. With medical politics we Æsculapians have concerned ourselves little. I think I can truly say not at all, and I sincerely trust our attitude in this respect in the past will also characterise us in the future. Our allegiance has been to the study of medicine, to which one turns with a sense of relief after glancing for a moment, and only to denounce it, at the projected trades unionism advocated in some quarters, which, if victorious, would replace the scientific by the commercial spirit in medicine. The spirit which has always imbued Æsculapians is that which filled those students of medicine in former times who wandered from shrine to shrine of natural knowledge, when the Doctorate was obtained at Padua or Montpellier, at Leyden or at Harderwyk, at Paris or in Edinburgh, at Oxford or at Cambridge, and, wheresoever obtained, carried with it a prestige which conferred the right to practise wherever time and circumstance brought the wandering student to a resting place and sphere for future work. Such practitioners remained students their life long and their success depended upon their individual endeavour to master and advance the science of which they were exponents, rather than upon their organisation of political forces.

Imbued with this spirit let us then, as Æsculapians, eschew the discordant politics of the coercive caucus and devote ourselves, as we have always done, to the study of nature, the promotion of the common health, and our mutual goodfellowship. It may be well for us at the present time to remember the words which Garth makes the shade of Harvey address to Hygeia, when she had conducted a delegate from the College of Physicians to the Elysian Fields to consult the revered sage and ask him to compose a quarrel which had broken out between physicians and apothecaries in the seventeenth century, somewhat similar to those which from time to time disturb the equanimity of our profession even now[1]—

> "Hail, blooming Godess! Thou propitious Pow'r,
> Whose Blessings Mortals next to Life implore.
> Such Graces in your heav'nly Eyes appear,
> That Cottages are Courts when you are there.
> Mankind, as you vouchsafe to smile or frown,
> Find ease in Chains or anguish in a Crown.
> With just Resentments and Contempt you see
> The mean Dissentions of the Faculty;
> How sick'ning Physick hangs her pensive Head,
> And what was once a Science, now's a Trade.
> Her Sons ne'er rifle her Mysterious Store
> But study Nature less, and Lucre more."

Harvey referred the delegate to the "Matchless Atticus," otherwise William of Orange, as an arbitrator. We may leave the coercive spirit to be dealt with by free men.

In the generation which has passed since the Æsculapian Society was founded medicine and surgery have not stood still, but time forbids my mentioning even briefly the idols overthrown, the new idols set up, or the truth more or less established. The records of our society since 1880 show that all these changes have been reflected in our proceedings. Our society is, however, essentially a clinical society, and it is for this reason that I propose on this occasion making some remarks upon Cardiac Motion as Revealed by the Vivisection of Disease. These will be largely based upon the clinical study of a very remarkable and instructive case of sarcoma of the heart, and unusual as it may be to cause so large a subject to revolve round a single case, I think you will agree with me when I have related it that the course I have taken is not without some justification.

The title of my address in itself is a very comprehensive one and practically includes the whole pathology of heart disease, to deal with which, even superficially, in one evening would neither be possible nor the attempt, if made, profitable. I shall consider, therefore, only a portion of the subject which found exceptional illustration in the case which I shall describe at length, and shall refer more briefly to a few others which have come under my personal observation and which illustrate the points which I propose discussing. Another object I have had in dwelling in so much detail upon a single case is to point the lesson that it is not necessary to have at command the large material of a hospital to make valuable observations. But that those who seek it may find all the material they require for advancing medicine in the daily work of general practice, if the good seed of scientific enthusiasm sown in their pupilage be not lost in the parched earth and among the weeds of the subsequent struggle for existence which is the lot of the majority of scientists at some, and usually at what is potentially the most fruitful, period of their lives. To keep alive this spirit of scientific inquiry, under strenuous circumstances frequently damping to enthusiasm, the Æsculapian Society was founded in 1880, and I think we may claim that it has not altogether failed to serve the purpose which its founders had in view.

Although there are differences in detail between the experimental and clinical methods of research, they are essentially one in aim and supplement one another. No useful purpose, therefore, can be served by exalting the importance of the one at the expense of the other. Any such invidious comparisons are eagerly seized upon by the ignorant to create prejudice against the student of life in

[1] Dispensary, p. 92, edition 1700.

the service of man, as witness the calumnious canine monument erected by the unreasoning in Battersea and by those, too, who hourly reap the benefit in their own persons and in those of their families of knowledge gained by the direct observation and interrogation of the action of living organs. But valuable as may be, and as has been, the information gained by vivisection, an equal value is to be attached to the observation during life and in fatal cases after death of the experiments made by disease in the living body of man, and at times made in a manner unapproachable by the ingenuity of the experimental physiologist.

During the period which has elapsed since the foundation of our society, much study, anatomical, experimental, and clinical, has been given to the nature and causes of cardiac motion. If we regard the factors which underlie cardiac movement to be three in number—namely, muscular, hæmic, and neural—and consider the muscular and neural as extremes, with the hæmic as a common or mean factor, the pendulum of opinion had, at the time of the foundation of the Æsculapian Society, swung to the neural pole. For this, the epoch-marking discoveries of several experimental physiologists such as Claud Bernard, the Webers, Schiff, von Bezold, Ludwig, Schmiedeberg, and others were largely responsible, and the argument from analogy with the voluntary muscular system supported this view. The anatomical and physiological observations of Gaskell, Englemann, His, Romberg, Hering, Erlanger, Cushny, and others, have tended since to reduce the rôle of the nervous system to a regulative one, as that of the blood to a nutritive one, and have exalted the rôle of the muscular factor to a leading position as the essential element in cardiac motion.

Anatomically, Kent, Tawara, and Arthur Keith have done much by the display of a peculiar and continuous although attenuated muscular connexion between the auricles and ventricles to strengthen this view, and clinically the graphic method as used by James Mackenzie, Wenckebach, Gibson, Hay, and many others, has also demonstrated the independent yet associated rhythmicity of the muscular fibres of veins, auricles, and ventricles. To a society such as this, largely composed of general practitioners, Mackenzie's work has especial interest, for it was while engaged in general practice, with all its interruptions to continuous study, that he collected the material and made the observations which have made him the foremost clinical exponent of the views on cardiac action which are at present received with much favour by some physiologists and clinicians.

I have no intention on the present occasion of discussing exhaustively the arguments either on the side of the neurogenist or myogenist as to the essential nature of cardiac motion. Personally I am inclined to plead for a triunity or trinity in organic action composed inextricably of the three factors named, while admitting specific property in all varieties of organic cell, whether gastric, hepatic, renal, cardiac, or any other. I propose limiting myself now to the consideration of the support given to, or objection offered by, clinical observation, to some conclusions recently formulated by physiologists from experimental observation as to the nature of the heart's action, and endorsed, at least for the time, by an increasing number of clinicians.

The heart, whether displayed *in situ* or excised, shows a regular and consecutive sequence of auricular and ventricular action and repose—of systole and diastole. Preceding the auricular, more minute observation shows a sinus, venous, or preauricular rhythmical action. Regarding the mammalian ventricle—that is, as a convoluted tube—motion begins at the base and travels to the apex by a mode of peristalsis with exaggerated rhythmicity. This exaggerated rhythmicity has the character rather of a series of consecutive explosions than of a sinuous peristalsis, the largest and most powerful magazine of all being exploded last. We must remember that we have to do in the mammal with two tubes coalesced into a single tube in the primitive state, which has later become a complex double organ, with great differences in the mass and character of its muscular structure in different sections. The auricles are observed to act almost, if not quite, synchronously, and the ventricles to do so also. It is, indeed, maintained by some physiologists that there is no evidence of the latter chambers, when undivided artificially, acting otherwise than synchronously, and many clinicians who have devoted attention to this point agree with them. It is found, however, experimentally, that while there is a consecutive progress of the rhythmical action from base to apex of the heart (from veins to auricles and from auricles to ventricles) these sections of the circulatory apparatus have also an "independent rhythm." If the heart be divided in portions each part has rhythmical action independently of any other part, and if auricular impulses be prevented reaching the ventricles by ligature, clamp, or section of the auriculo-ventricular junction, these chambers contract, nevertheless, more or less vigorously and independently, although, it may be, at different rates of action. When Gaskell wrote his article in 1883[2] the anatomical and physiological nature of the auriculo-ventricular connexion between the auricles and ventricles had not been discovered in the mammal. Kent[3] and His[4] made their observations in 1893. Kent observed, in addition to the track later described by His, and in the rat and monkey, a more general connexion between the chambers. This Keith and Flack have been unable to find in man.[5] It is possible that the present physiological hegemony enjoyed by the bundle of His may be modified by farther research in the direction indicated by Kent's observations on the monkey. Tawara's work further demonstrated the existence and peculiarities of the connexion between the auricles and ventricles, and has suggested a new view of nature of the fibres of Purkinje,[6] while the researches of Erlanger, Hering, and others have shown that a remarkable disturbance of the rhythm between the action of the auricles and ventricles frequently occurs when the point at which these fibres leave the right auricle for the ventricles is held in a clamp or divided by a knife. Some like Imschanitzky[7] have not obtained the same results, but it may be taken as proved that crushing or cutting of certain portions of the heart in the auriculo-ventricular area does modify the relative action of the auricles and ventricles. But any interruption to the regularity of such rhythm only brings out more emphatically the possession by all parts of the heart of an independent power of contraction, and the query is suggested whether this primitive track, the remains of an embryonic condition, which is curiously said to arise and end in muscle of the ordinary type,[8] has the importance now frequently assigned to it, when the heart is fully grown, and whether there are not other channels of even greater importance for controlling the generation of and conveying to all parts of the apparatus the power to exercise the functions which the several parts are designed to subserve, these channels being the cardiac nerves.

A careful study of the effects following the involvement by disease of various portions of the heart may assist us in forming our opinion on some of these problems studied by the experimental physiologist. A number of interesting observations have been made during recent years, since the auriculo-ventricular bundle of His has been much under discussion, in which it has been attempted to account for various disturbances in rhythmical action of the heart by the discovery of pathological conditions in the track of that structure or system of muscular fibres. Thus gummata have been found in the ventricular septum in cases exhibiting the Stokes-Adams syndrome with bradycardia. Interstitial changes have also been described in such cases and in instances of cardiac arrhythmia, and the conclusion is drawn that this impairment of the conductive property of this thread on which human life is made to hang is the essential cause of these disturbances of cardiac motion. But in order to study the effect of partial disablement of the heart by disease and to estimate the degree of independent rhythmicity possessed by the several portions of the heart, at least in man, I believe important conclusions may be arrived at by a careful study of malignant and other disease involving the organ and placing portions of it out of action or greatly impairing their effective exercise.

The proportion of cases of intrathoracic malignant disease which actually involve the heart is not great and those in which the heart is greatly involved in the neoplastic process are still more rare. It is not remarkable, therefore, that special attention does not appear, so far as I am aware, to have been directed to a study of the points to which I have

[2] Journal of Physiology, vol. iv., p. 43.
[3] Ibid., vol. xiv., 1893.
[4] Arbeiten aus dem Medicin. Klin. zu Leipzig, 1893.
[5] THE LANCET, August 11th, 1906, p. 359.
[6] Das Reizleitungssystem der Säugetierherzens, Jena, 1906.
[7] Archives Internationales de Physiologie, vol. iv., p. 1.
[8] Tawara: Op. cit.

referred, from a clinical study of the manner in which portions of the heart have been disabled by this natural experimental method, or what may be described as the method of neoplastic fixation. Hare[9] collected 232 cases of malignant disease of the mediastinum in which there were only 12 cases of actual implication of the heart. Lindsay Steven[10] records one such case among seven which he discusses, and recently Glynn[11] relates extension to the walls of the heart in two out of 23 cases of intra-thoracic disease, all of which were neither carcinomatous nor sarcomatous. In other words, the heart was directly affected by the neoplastic process in 15 out of a total of 262 cases—that is, in a fraction under 5 per cent. In the majority of these cases little or no reference is made in the works quoted to ante-mortem signs in connexion with the post-mortem conditions presented by them. A case described by Steven may be regarded as an exception to this rule, but no doubt others at their original sources are also more fully described. In the case I am now about to discuss much of the heart was directly involved, and the progressive disablement of the organ was noted during life. I am therefore inclined to regard it as affording valuable information from the standpoint of clinical physiology, as to the nature and power of cardiac motion, both in its propulsive and attractive phase.

The patient, a girl 14 years of age, was admitted to the Great Northern Central Hospital under my care on April 2nd, 1907. She had suffered since the previous Christmas from cough of a "brassy" character, which she herself compared to the bark of a dog. It was accompanied by some expectoration which was occasionally blood-stained. Later she complained of pain in her left shoulder and ordinary exertion induced breathlessness. She had also some difficulty in swallowing food, deglutition requiring to be aided by drinking water. Prior to the commencement of the symptoms related the patient had been healthy, and her family history of disease was unimportant.

On admission she was seen to have lost flesh but not greatly, and inspection revealed some bulging of the chest in its left anterior and upper portion. The superficial blood-vessels in this area were engorged. The movement of the chest was normal on the right but restricted on the left. The percussion note was dull over the left upper lobe of the lung anteriorly, and the dulness, like the bulging, extended across the sternum to rather beyond its right edge and downwards on the left as far as the fourth intercostal space. The respiratory rate was 28, but dyspnœa was out of proportion to this, and the patient stated that she had not been able to lie down for some time. When seen she was orthopnœic and somewhat cyanosed. The pulse-rate was 130; its rhythm was regular and its volume was fair. The cardiac impulse could not be felt, but in the fifth *right* intercostal space there could be heard a loud, rough, systolic bruit, traceable round the *right* side of the chest and quite audible in the right paravertebral groove. No bruit could be heard to the left of the sternum anywhere. It was therefore concluded that we had to deal with a mediastinal tumour, chiefly occupying the left and upper part of the chest and extending across to the other side under the sternum, compressing in its course the trachea at some point, and, directly or indirectly, causing engorgement of the right side of the heart, with the generation of the loud tricuspid bruit described. It will be seen in the sequel that this diagnosis was not altogether correct. But I think you will agree with me that the diagnosis made was more probable than the conditions actually found after death. I have, indeed, myself known of mediastinal tumour, verified after death, so pressing on the pulmonary artery as to dilate the right ventricle by engorgement and giving rise to well-pronounced tricuspid bruit audible to the right of the sternum and continuously heard round the right side and in the right paravertebral groove. In this case also the bruit was inaudible at all points to the left of the middle line. As, moreover, the patient did not present the cachexia of malignant disease, and I considered it just possible that we might have to do with a hydatid cyst or with some glandular tumour of a non-malignant character, and as, in any case, relief of strangulation was imperative, I asked my colleague Mr. Ewen C. Stabb to remove the second and third left ribs and cartilages over the most prominent part of the bulging to afford relief from pressure and to permit of growth in the direction of lessened resistance. This he did on April 4th, 1907. The anæsthetic was skilfully administered by my house physician Dr. R. Mackenzie Gunn, and gave much anxiety from the dyspnœic and cyanotic condition of the patient, but happily effected its purpose without untoward accident. Mr. Stabb made a transverse incision about four inches in length at the level of the third left intercostal space. The second and third ribs were exposed, their perichondrium and periosteum were detached, and about three inches of both ribs, including bone and cartilage, were removed. The structures exposed were found to be adherent to underlying substance. Avoiding the large vessels Mr. Stabb then explored with the needle and syringe, but only a little blood and serum were withdrawn. The parietal pleura was then transversely divided and revealed a nodular growth in the anterior mediastinum immediately to the left of the sternum; it was manifestly irremoveable. The fibro-cellular tissues over it were divided by two parallel incisions which were united by a cross cut so as to relieve tension still further, and a portion of the growth, accidentally incised, revealed structure regarded as sarcomatous. The wound was then closed.

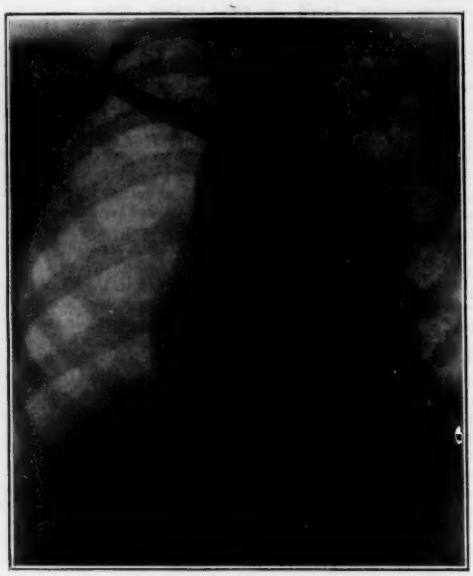
There was no immediate relief of dyspnœa as a consequence of this procedure; the patient remained orthopnœic. She gained ease by being suspended from the arm-pits by soft slings. After a night passed thus she was able to recline better and for a time appeared to be easier in respiration, although still dyspnœic and having the brassy cough of pressure. On April 9th, five days after the operation, I find the following note: "Since the operation patient has much improved. Formerly it was impossible for her to lie down even slightly reclined on account of the incessant coughing which followed. Now she can lie back quite comfortably and the cough is not so severe. The tumour is evidently accommodating itself to the further space afforded." On April 13th it is noted: "Patient much better. Can lie back quite comfortably. Colour better and she looks better. Cough nearly gone but still suggestive of pressure. Stitches were taken out of wound to-day. Bulging seems more pronounced. No change in respiratory murmur." The wound is noted as satisfactorily healed on April 16th. On the 17th the patient had a sudden and temporary aggravation of dyspnœic signs. She became much cyanosed, with shallow breathing and weak pulse. Strychnine was injected hypodermically and oxygen inhaled. These measures gave some relief. Next day œdema of the face and persistent dilatation of the right pupil were noted, the pupils having on admission been observed to be equal and reacting to light normally. The respiratory signs remained as before and the systolic cardiac bruit is noted as audible in the right paravertebral groove, not in the left. Oxygen had still to be inhaled at intervals. On the 22nd the patient is stated to have been "much better," with less œdema of the face, diminished audibility of the dextral bruit, with bronchial breathing at the upper part of the left chest anteriorly and persistence of the dilatation of the right pupil. On April 25th it is noted that there was no swelling of the face, that the systolic bruit had "entirely disappeared," that the patient slept and ate well, that the inequality of the pupils was less marked, and that the respiratory signs remained the same. On the 29th the pulse had dropped to 100, and *the heart is noted to be back again on the left side, the apex beat being in the fifth space.* On May 14th the heart sounds are stated to have been normal, the apex beat in the fifth space, and general improvement continued. On the 21st the patient was quite comfortable, ate well, and slept well, the pupils being noted as "practically equal," there was no swelling of the face, and the other physical signs were as before. A blood count made on the 27th showed 3,416,000 red and 7100 white blood cells. On the 28th the patient complained of pain in the præcordia, the temperature rose to 101° and the pulse to 144. Later on the same day I noted myself that the pulse-rate was 120, that there was *a cantering reduplication of the first sound*, that no friction was to be heard, that the right pupil was larger than the left, and vocal resonance increased on the left side posteriorly where respiration was also diminished. On May 31st the blood pressure estimated by the Riva-Rocci instrument is noted to have been 92 millimetres, and equal in both arms. The febrile attack lasted for some days, as on June 6th she is noted as being better and the temperature as normal.

[9] Affections of the Mediastinum, Philadelphia, 1889.
[10] Mediastinal Tumours. London, 1892.
[11] THE LANCET, August 8th, 1908, p. 359.

After this date the patient continued for a considerable period to be subjectively comfortable, eating and sleeping well, and increasing in weight. Thus on June 23rd she weighed 4 stones 8 pounds and on July 4th when she left the hospital 4 stones 11 pounds. On June 13th a skiagram was taken and the chest examined through the screen. A bulging shadow was seen towards the left about the level of the second rib, but the general dimensions of the cardiac shadow seemed to be of normal shape and proportions. The skiagram itself was not satisfactorily clear and another was taken somewhat later with the plate placed in front and the light behind. This gave a more definite shadow, showing the same bulge to the left in the upper part of the picture and more enlargement of the right side of the heart. (Fig. 1.)

On July 4th, the day the patient left the hospital, the following note was made to my dictation: "Apex beat fourth (left) space 2 inches from mid-sternal line. Right cardiac dulness extends to mid-sternum at the level of the nipple. Left cardiac dulness extends 4½ inches from the mid-sternal line. Percussion dulness extends from the left clavicle to the fifth rib. Just below the left clavicle percussion note is clearer than elsewhere, but is diminished as compared with the note on the right in the same situation. Cardiac pulsation is visible, being systolic from the third to the fifth ribs and diastolic between the second and third ribs. Heart sounds normal; no accentuation or reduplication. Measurement of the chest shows a circumference of 13½ inches for the left chest and 13 for the right at the same level. The scar between the second and third ribs measures 2¾ inches. Respiratory movement greater on the right than the left; respiratory sounds on the right normal or slightly puerile." On the left the physical signs were as previously

FIG. 1.

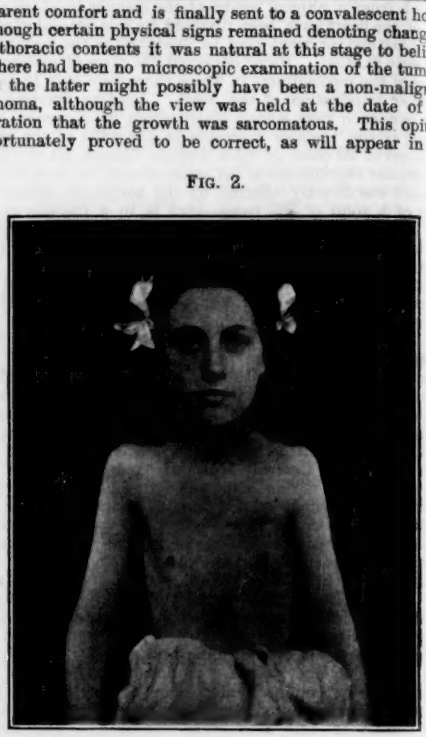


Reproduction of a skiagram showing bulging shadow on the left at the level of the second rib and enlargement of the right side of the heart.

noted. Before the patient left the hospital her photograph was taken which sufficiently exhibits her apparent ease in respiration and her general well-being. The situation of the operation wound is marked by a cicatrix which has not come out very clearly in the picture. (Fig. 2.)

The hospital card chronicles the discharge of the patient on July 5th and notes the result as "cured"! Although in no way responsible myself for this conclusion, there is some excuse for the official error. An almost asphyxiated patient is admitted to hospital, undergoes an operation for the relief of her distress, after a period breathes easily, eats and sleeps well, regains flesh and her usual ability to move about with apparent comfort and is finally sent to a convalescent home. Although certain physical signs remained denoting change in the thoracic contents it was natural at this stage to believe, as there had been no microscopic examination of the tumour, that the latter might possibly have been a non-malignant adenoma, although the view was held at the date of the operation that the growth was sarcomatous. This opinion unfortunately proved to be correct, as will appear in the

FIG. 2.



The patient, photographed towards the end of her first stay in hospital when she was apparently convalescent. The cicatrix shows the position of the operation wound.

sequel, but this very temporary "convalescence," in view of the underlying conditions revealed after death, is of great physiological interest, as I shall presently contend.

On July 29th, after her return from the convalescent home, I saw the patient at the hospital whither she had come to report herself. Her pulse, standing, was 126 and her respirations were 24. She looked well and expressed herself as feeling comfortable. She stated that although breathing gave no discomfort while at rest or on moving about in a leisurely manner, any hurrying or climbing rendered her more breathless than before her illness. The right pupil was noted to be more dilated than the left, the right external jugular vein was distended but not pulsating, the heart sounds were normal and without bruit, but the action of the organ was heaving and a visible pulsation extended to the right of the sternum. The physical signs in the lungs were as before noted. This comparatively comfortable condition of affairs did not continue long. The patient was again admitted to hospital on Sept. 18th, 1907, and the following note was made by me next day: "Respiration 54. Left mamma enlarged to a diameter of 4 by 5 inches and of stony hardness. Right mamma normal. Thoracic percussion on the left anteriorly, dull from the clavicle to the fifth rib. Respiratory bruit almost absent over the same area. Circumference of the chest about the same. Veins visible at top of sternum. The fall (of the body) is towards the left on expiration. Retraction of intercostal spaces most visible on the right during inspiration. Right chest: percussion clear from clavicle to mamma. Below that dull, presumably liver. Respiratory murmur exaggerated all over the right chest, with pleural friction at the level of the fifth rib audible as far as the mid-axilla. Thorax posteriorly—Left: bronchophony in interscapular region and respiration, though audible, less loud than on the opposite side. Right: exaggerated peurile respiration; no moist sounds. Cardiovascular system: heart-rate, 120; regular; no bruit. Apex about fifth (left) space. Loss on percussion dulness of left chest and præcordia due to mediastinal invasion." (This

is not very clearly expressed. The situation of the apex beat was probably determined by auscultation, although this is not expressly stated. "Loss in percussion dulness" means that the normal outline of the heart obtainable by percussion was obliterated by the mediastinal neoplastic process.) "Heart sounds on the whole more clear (audible) to the left of the sternum. No pericardial friction. Slight persistent fulness of the right external jugular vein. Right pupil slightly enlarged but not so much so as formerly. Complains of difficulty of breathing but has no cough and is not cyanotic."

The condition of the patient now was too evidently hopeless and beyond endeavouring to make her as comfortable as possible in the circumstances little is noted. On Sept. 27th the pleural friction sounds on the right extended nearly up to the right clavicle. The patient was stated to be "feeling much the same" and sleeping well. On Oct. 1st "it is noted she does not feel so well this morning. She cannot get her breath at times and is unable to lie down. She sleeps fairly well but does not take her food well. The swelling in the left breast is more extensive, going out more into the axilla. Friction extends up to the clavicle on the right side and is also in the axilla now. At the right base behind there are some scattered patches of friction. The bronchophonic area behind is more extensive." Here the record ends. I find no note of the condition of the urine, but understand that towards the end of the case it contained a moderate quantity of albumin. The patient died on Oct. 3rd, 1907, and I am informed by the ward sister that she retained consciousness until within an hour of death.

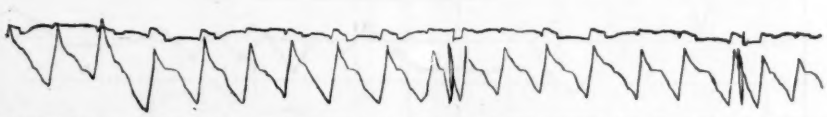
The following is a chart of the patient's temperature, pulse, and respiration during the first month of her stay in hospital. To simplify the curves only one fact is noted daily. They (especially the pulse curves) are of interest in view of the remarkable cardiac conditions found post mortem. (Fig. 3.)

A sphygmogram and cardiogram were taken on June 13th. The jugular tracing revealed nothing definite except the motion of respiration and was not preserved. In view of the actual conditions present I regret now that this was not done. The radial sphygmogram is normal, the greater length of the third wave being due to defective instrumentation. The cardiogram shows small and indefinite excursions because of the intervening cardiac tumour. The interruptions show corresponding phases of action. (Fig. 4.)

FIG. 3.

Charts of temperature, pulse, and respiration rates during the patient's first month in the hospital.

FIG. 4.



Radial sphygmogram and cardiogram taken on June 13th, 1907. The sphygmogram is normal, the greater length of the third wave being due to defective instrumentation. The cardiogram gives very small excursions of the pen on account of the intervention of growth. The interruptions show corresponding phases of the two tracings. No jugular tracing could be obtained.

The following curves of temperature, pulse, and respiration made from data collected during the patient's later stay in hospital are given more fully than the previous curves, because the underlying cardiac conditions to be mentioned were certainly by this time fixed. Hence the physiological importance of these circulatory data is proportionately increased. (Fig. 5.)

Necropsy.—The body was examined on Oct. 4th. There was no œdema of the limbs or excess of fluid in the peritoneum. 13 ounces of blood-stained serum were found in the right pleural cavity. Both lungs were adherent to the ribs and the base of the left to the diaphragm. Sarcomatous growth was found in the kidney, on the bodies of some of the vertebræ, and on several of the ribs of the right side, as

well as the large mass under the left mamma. The right half of the diaphragm was likewise invaded by new growth and also some of the retro-peritoneal lymph glands. The contents of the thorax were removed *en masse* and placed in formalin solution for later dissection.

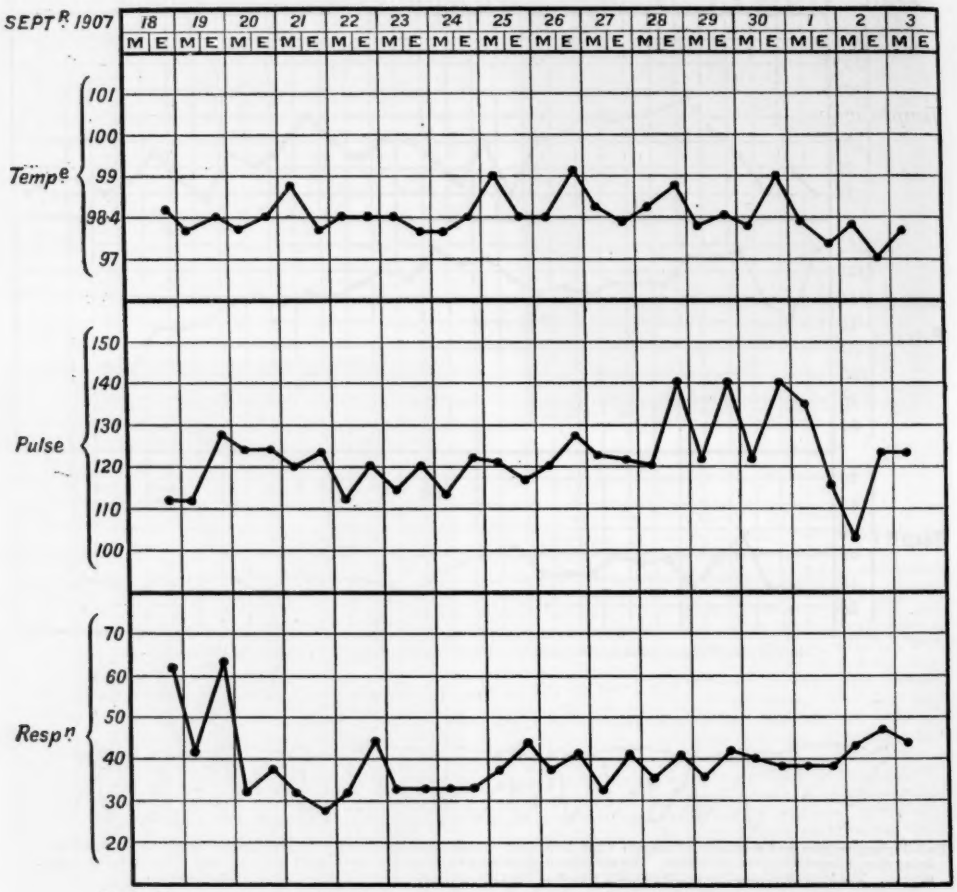
After having been hardened the contents of the thorax were divided transversely into five portions. Looked at from behind, the outlines of both lungs were easily distinguishable. In front a large mass of new growth was seen pushing back both lungs and occupying the anterior mediastinum. The first section was made at a depth of 1½ inches from the highest point of the tumour and shows new growth presenting a surface of 5 by 3 inches. The upper surface of the second section showed the tumour lying in front, with rather more of it distributed to the left than the right of the middle line, while compressed behind it appeared the trachea and œsophagus, a section through the arch of the aorta showing the origin of the innominate and left carotid arteries and a slice off the transverse arch at the place of origin of the left subclavian. Between a large and malignant bronchial gland, which helped to compress the trachea, and the body of the tumour was an irregular slit which marked the position of the superior vena cava. The lungs were adherent to the mass of new growth.

The upper surface of the third section shows the descending aorta very slightly compressed, with the œsophagus to the front and right of it, sections of the main bronchial bifurcation and at the posterior portion of the tumour, the much-distorted ascending aorta having to its right the superior vena cava. (Fig. 6.)

The upper surface of the fourth section shows posteriorly the slightly compressed descending aorta and œsophagus. In front of these a section through the left auricle and pulmonary veins. In front of these, again, in the substance of the tumour, lies the base of the aorta showing its cusps, which are normal; to the left of this a section through the pulmonary artery and to the right an aperture leading into the right auricle, the place of entrance of the superior vena cava. The points of a row of black pins passed through one supposed boundary of the right ventricle and auricle on the lower surface of this fourth section present themselves on the upper surface now described and show the completeness with which the right chambers have been invaded by the growth at this level. (Fig. 7.)

The lower surface of the fourth section shows the complett

FIG. 5.

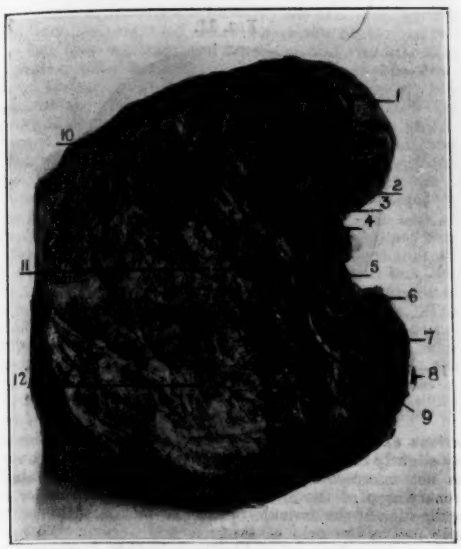


Charts of temperature, pulse, and respiration rates during the latter portion of the patient's stay in the hospital.

transformation of the wall of the right ventricle into malignant tumour, the almost complete obliteration of the right auricle from this point of view from the same cause; the escape of the septum ventriculorum from invasion and the normal character of the left ventricle, which is, however, quite adherent to the pericardial sac, and the latter to extra-pericardial new growth. The outline of the pericardium over the right ventricle is lost in the tumour. The row of pin-heads indicates one guess, and an incorrect one, at the possible outline of the transformed right ventricle. The points of these are seen as stated in the upper surface of the fourth section. Behind the heart sections of the descending aorta and œsophagus are seen. The section also shows invasion of the anterior portion of the right lung and complete adhesion of the left to the tumour. This section was

again divided transversely and half of it given by me to a Russian physician (Dr. Schwartz of Moscow) who saw the specimen and asked for a portion of it. The lower surface of this mid-fourth section, as I have termed it, shows the complete fixation of the right auricle and ventricle and the encroachment of the growth on both these chambers. The dotted line shows the situation of the pins seen in Figs. 7 and 8, which were withdrawn in order to cut the slice (Fig. 9).

FIG. 6.

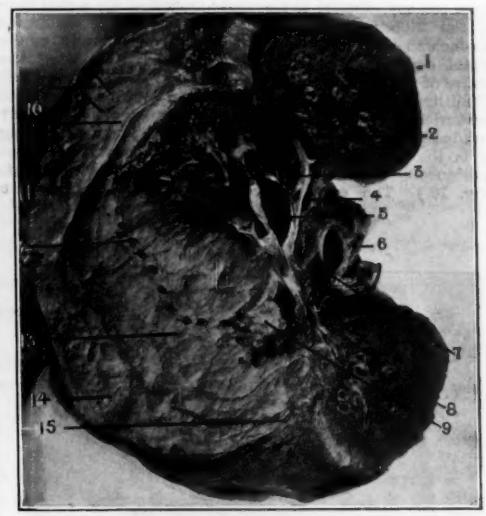


Upper surface of the third section. 1, Right lung. 2, Bronchus. 3, Superior vena cava. 4, Bronchial gland. 5, Œsophagus. 6, Descending aorta. 7, Bronchus. 8, Left lung. 9, Pulmonary artery. 10, Pleural line. 11, Ascending aorta. 12, Mediastinal growth.

FIG. 7.

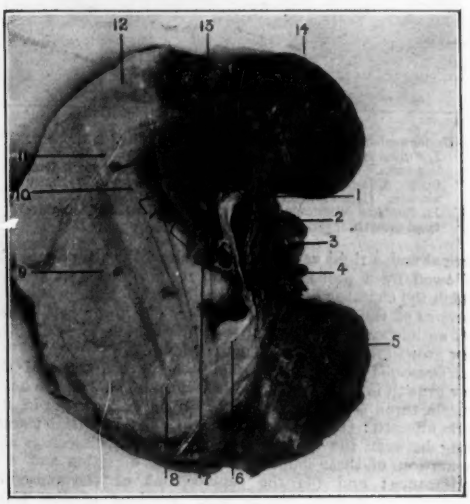
Upper surface of the fourth section. 1, Right lung. 2, Right auricle with hole entering it. 3, Pulmonary vein. 4, Œsophagus. 5, Descending aorta. 6, Left auricle. 7, Left lung. 8, Pleural line. 9, Invasion of the lung by growth. 10, Pleural line. 11, Right ventricle and growth. 12, Aorta with sinus of Valsalva and aortic valves. 13, Pulmonary artery. 15, Points of pins the heads of which are seen in Fig. 8, being one attempt to outline the right auricle and ventricle. 16, Mediastinal growth.

FIG. 8.



Lower surface of the fourth section. 1, Left lung. 2, Left ventricle. 3, Mitral valve. 4, Left coronary artery. 5, Left auricle. 6, Descending aorta. 7, Œsophagus. 8, Right lung. 9, Right auricle. 10, Mediastinal growth; pericardium. 11, Mediastinal growth. 12, Right ventricle (portion examined microscopically). 13, Right ventricle. 14, Mediastinal growth. 15, Right pleural line.

FIG. 9.



Surface of mid-fourth section looking downwards (or lower surface); upper surface of mid-fourth section was given to Dr. Schwartz of Moscow. 1, Left coronary artery. 2, Left auricle. 3, Descending aorta. 4, Œsophagus. 5, Right lung. 6, Right auricle. 7, Aorta. 8, Right ventricle. 9, Right ventricle (pin points, as in Figs. 7 and 8). 10, Inner portion of the same leading to the conus arteriosus. 11, Pericardial line. 12, Tumour in the anterior mediastinum. 13, Left ventricle. 14, Left lung. Marks within the indicating lines show portions removed for microscopic examination.

The upper surface of the fifth section shows the same conditions—invasion and fixation of the right auricle and ventricle with escape of the septum ventriculorum and left heart, and the pulmonary conditions referred to in describing the last section. In the interior of the right heart, above a glass rod at the atrio-ventricular junction there may be observed a nodule. It was of the size of a large pea and situated at the upper margin of the septal cusp of the tricuspid valve and below the septal end of the Eustachian valve which was stretched. The length of the septal cusp was 35 millimetres and the distance of the centre of the growth from the septal end of the valve about 13 millimetres. This nodule, as will be shown, pouted from the auricular end of the coronary sinus, which was apparently invaded by growth throughout its length, the tumour growing as is the manner of sarcomata in the direction of least resistance. All the valves in the heart were normal. (Fig. 10.) The entrances to the coronary arteries were

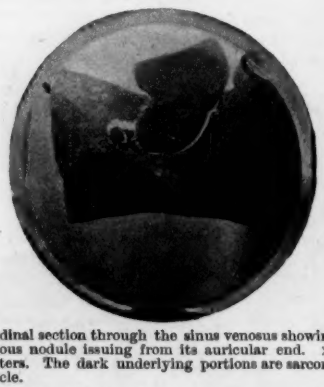
FIG. 10.

Upper surface of the fifth section. 1, Right lung. 2, Bronchi. 3, Pulmonary vein leading into the left auricle. 4, Descending aorta. 5, Œsophagus. 6, Left coronary artery. 7, Left lung. 8, Left ventricle. 9, Mediastinal growth. 10, Right auricle. 11, Nodule on the septal segment; right ventricle, 12, Septum ventriculorum. 13, Pericardium. 14, Mediastinal growth.

normal and a right ventricular branch of the artery could be followed by a probe passed into it, into the tumour into which the chamber had been transformed. Antero-posterior sections of the left chambers showed the lower part of the left auricle and upper part of the left ventricle to be fixed by new growth in the posterior mediastinum.

Microscopic examination.—The general character of the new growth is that of a round-celled sarcoma. In the heart muscle three stages of invasion may be easily noted in the parts affected: (1) the infiltration of the interstitial tissues lying between the muscle bundles; (2) the dissection and separation of these bundles; (3) their digestion and disappearance; and (4) the replacement of the muscular elements by sarcomatous growth. Portions of the right auricle invaded by the growth showed transformation into and fixation by the tumour, and this was the case at the entrance of the superior cava into the right auricle in a large part of its circumference. The right auriculo-ventricular ring was similarly transformed and fixed. One of the most interesting sections shows the passage of the sarcomatous growth along the coronary sinus, and transverse sections of this nodule issuing from its auricular end reveal a ring of blood clots at a point once bathed by blood before the tumour, had quite filled the lumen of the vessel. The sinus-wall is in places invaded and fixed by new growth (Figs. 11 and 12). Coronary venous stagnation is well shown, with here and there extravasation of blood and compression of the arteries by sarcomatous invasion of surrounding structures. The auricular muscle below the sinus from which the bundle of His arises is obliterated by new growth. The septum ventriculorum in the

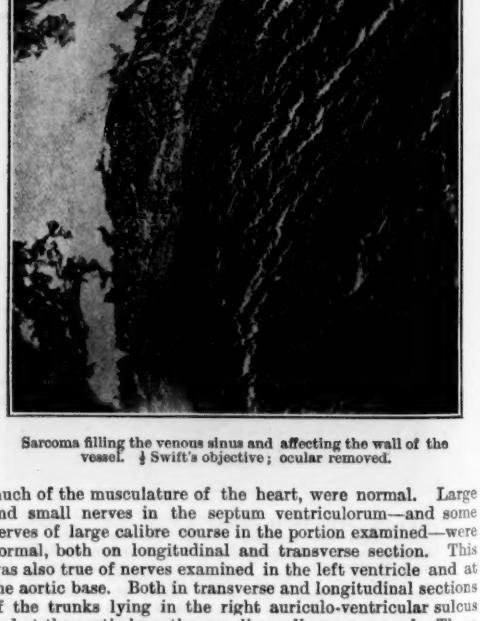
FIG. 11.



Longitudinal section through the sinus venosus showing sarcomatous nodule issuing from its auricular end. × four diameters. The dark underlying portions are sarcomatous ventricle.

portions examined is in most sections normal and in some very slightly infiltrated. The portion given to Dr. Schwartz was not microscopically examined and contained the non-coronary cusp of the aortic valve, an important site for the examination of the auriculo-ventricular bundle. All muscular tissue not in the grip of sarcoma was normal. No nerve trunks could be distinguished by the naked eye in the tumour, but microscopic sections showed nerve texture to be as a rule well preserved, even when imbedded in new growth. Large trunks lying in the right auriculo-ventricular sulcus, trunks, be it remembered, which in their ultimate distribution supply

FIG. 12.



Sarcoma filling the venous sinus and affecting the wall of the vessel. ⅓ Swift's objective; ocular removed.

much of the musculature of the heart, were normal. Large and small nerves in the septum ventriculorum—and some nerves of large calibre course in the portion examined—were normal, both on longitudinal and transverse section. This was also true of nerves examined in the left ventricle and at the aortic base. Both in transverse and longitudinal sections of the trunks lying in the right auriculo-ventricular sulcus and at the aortic base the ganglion cells were normal. These

were observed in portions of nerves which enlarge in a fusiform manner at points where they occur and also when more sparsely collected in sections which show no such abrupt enlargement. It is important to note that the ganglion cells observed were *in*, not *on*, nerve trunks. They were, therefore, either of vagal or spinal origin, unless the trunks are to be regarded as combining both streams, which is probably the case. According to His and Romberg[13] all heart nerves are of this mixed nature, but they maintain, for developmental reasons, that the ganglion cells are exclusively derived from the sympathetic system, and this they derive from the sensory division of the nervous system. His likewise denies the existence of nerve trunks and ganglia in the septum ventriculorum.[13] Ever since the days of Haller myogenists and neurogenists alike have been amusingly prone to deny the existence of the undiscovered, as it has suited their argument, and have both had to revise their views in consequence of the formerly unknown becoming an accepted fact of anatomy. It is a human if illogical tendency and not confined to cardiac physiologists. I have not so far happened upon ganglia in the ventricle, and probably shall not, but nerve trunks, large and small, and both in longitudinal and transverse sections, may be found in the septum. The chief situation of large trunks in the septum appears to me to be in or near the line where the right and left ventricular portions of the septum fuse. The nerves are largest in the anterior part of the septum and apparently enter it in this plane. In sections of the septum more posteriorly situated the nerves are small and specimens may be examined in which not even small trunks occur, but nevertheless we know every fibril to be innervated. As regards ganglion cells, I hope I am not committing an error of generalisation when I state that it appears to be a law of the visceral distribution of these that in organs which contract powerfully in the exercise of their function the ganglion cells are placed outside the area of greatest compression. This appears to be true not only of the heart but also of the uterus, a fact which I determined after careful investigation some years ago.[14] Whatever the precise function of the cardiac ganglia in or above the auriculo-ventricular boundary they are therefore in all probability largely designed to influence the non-ganglionic ventricle, and in clamping and cutting experiments very liable, together with important nerve trunks, to be injuriously affected by these procedures.

For the micro-photographs I am indebted to my friend Mr. Frank Crosbie whose method was described in THE LANCET of Jan. 24th, 1903, p. 233.

Remarks.—The study of a case such as I have related presents many points of interest, such as the spread and effect of malignant disease on texture, to endeavour to discuss which would lead us away from the special aspect of it which concerns us this evening—namely, the character and modification of the action of the heart as evidenced during life and explained in some measure by the anatomical conditions observed after death. The history and manifestations of the case fall under three periods: first, when the patient was admitted to hospital with much dyspnœic distress and was operated upon for relief; secondly, when such relief had been procured or in any case established itself; and, thirdly, when this period of ease again yielded to a return of respiratory distress, which terminated in death. The first of these periods lasted in an acute form about a month, the next about three months, and the last about a month, the whole duration of the illness as gathered from the history and from observation having been about ten months.

In the three periods certain clinical and anatomical conditions may now be associated which may be shortly tabulated as follows:—

First Period.

Dyspnœa ... ... Dysphagia	Pressure from growth on the trachea and œsophagus.
Cyanosis ... ... Œdema of the face	Impeded dextro-cardiac and pulmonary circulation.
Tricuspid bruit	Fixation or nodular opening of the R.A.V. orifice.
Apparent displacement of the heart to the right ...	Due to loudness and roughness of the tricuspid murmur and impalpability of the H.A.B.
Disappearance of bruit ...	Progressive fixation of the dextral chambers of the heart.
Reduplication of the first sound = hemisystole (?)	Ditto.
Right mydriasis	Pressure on the right sympathetic nerves.
Pulse regular	Absence of A.V. blockage or interrupted nervous influence.
No pericardial or pleural friction	Pericardium probably adherent.

Second Period.

Eupnœa ... ... Euphagia	Relief of pressure from growth on the trachea and œsophagus.
Increase of weight	Better nutrition.
Absence of cyanosis .. .. ,, œdema	Improved dextro-cardiac and pulmonary circulation.
No bruit	Complete fixation of the R.V.
Apparent return of the heart to normal situation	Disappearance of rough masking tricuspid bruit.
Regular pulse	Absence of A.V. blockage (?) or interrupted nervous influence.
Persistent right mydriasis	Continued pressure on the right sympathetic.
Physical signs as before ...	Continued presence of the growth.

Third Period.

Return of dyspnœa	Invasion of the lungs and diaphragm.
Emaciation	Malnutrition.
Cyanosis ... ... Some albuminuria	Impeded pulmonary and dextro-cardiac circulation with some fixation of the L.A. and L.V. (?); congestion of and metastasis to kidneys.
No œdema	Sufficient aspiration and propulsion by the L.V. and lungs.
No bruit	Complete fixation of the R.A. and R.V.
Pulse regular	No A.V. blockage (?) or interrupted nervous influence.
Pleural friction	Invasion of the right pleura by growth.
Increased physical signs, percussional and palpable, of the growth	Greater growth.
Persistent mydriasis	Continued pressure on the right sympathetic nerves.

Whether the thoracostomy undertaken to relieve intrathoracic pressure in this case was directly responsible for the amelioration of the patient's condition which soon thereafter set in we cannot at present discuss more fully. The fact is that she apparently benefited for a considerable period, although at the necropsy the portions of ribs removed had been largely reproduced by the periosteum left *in situ*. What concerns us more now is to account for the indubitable fact that a heart so greatly disabled in its right auricle and ventricle with the entering and leaving vessels tightly grasped by new growth, the entire organ fixed to the pericardium and pleura, and growth ultimately hampering the action of portions even of the remaining effective left auricle and ventricle, nevertheless continued to carry on the circulation sufficiently well to obviate anasarca or other serous effusion, and with a sustained regularity of the pulsations of the left ventricle acting very largely, if not quite, alone.

The only portions of the right ventricle which could by any conception be regarded as effective were the right ventricular aspect of the septum ventriculorum and a small portion of the posterior wall. That the circulation was effectively carried on thus *for a considerable period* is evident from the degree to which the heart was involved in the morbid process. It was not merely pushed aside by, or adherent to, the growth, as frequently happens, but was involved in it and replaced by it, a process requiring time. The aspiratory and propulsive aid of the right chambers may therefore be regarded as having been practically extinguished, however their stimulative power may be agreed to have persisted, and the progress of their extinction was clinically marked by the gradual silencing of the rough tricuspid bruit, which was so marked a feature of the case in its first period. For it cannot be argued that the bruit became masked by the enlargement of the mediastinal tumour, as it also ceased to be audible in the back where there was no tumour other than the transformation of the right ventricle itself into tumour. The left chambers of the heart were therefore acting for a

[13] Arbeiten aus dem Medicin. Klin. zu Leipzig, 1893.
[13] Loc. cit., p. 25.
[14] The Nervous System and Visceral Disease, Edinburgh, 1899, p. 63.

considerable period, at least in very great measure, independently of those to the right. This in itself is an important conclusion to have arrived at, for the possibility of this occurring in a heart which has not been bisected is denied by many and the clinical occurrence of hemisystole or asynchronism of systole in the ventricles while in anatomical union is necessarily denied by those who take this view.

In this connexion it is of interest to refer to the reduplication of the first sound of the heart which was noted at one phase of the case soon after the abolition of the tricuspid bruit (May 28th) and possibly before the contractile power had left the right ventricle so completely as it ultimately did. On this sign, however, I do not place much stress in this case, for the evidence it affords of the independent action of the two ventricles is weak when compared with the other evidence to hand which it is not possible in my opinion to dispute. Some physiologists assert that if the ventricles be separated the one from the other but left in connexion with their respective auricles the rhythm of the two differs,[15] but if not so divided the ventricular rhythms are synchronous. In such an experiment no doubt the "bundle of His" is divided at some point; much more, however, is also divided, and while we may accept the record of ensuing phenomena we may hesitate to receive as correct the purely muscular explanation of them advanced by some observers.

Eliminating, then, as I think we are justified in doing, the aid afforded by the right heart in maintaining the circulation in this case, we are left with the aspiratory and propulsive powers of respiration and the same forces in the left side of the heart. That respiration has a considerable effect, both in aspirating blood from the venous section of the circulation into the lungs during inspiration and in promoting its outflow during expiration, is generally admitted by physiologists. The influence of respiration on the circulation has also been noted clinically. I discussed the matter with some fulness myself in a paper on the Treatment of Aortic Valvular Disease of the Heart read at the general meeting of the British Medical Association in London in 1895, which was published in the *British Medical Journal* of March 14th, 1896. Any tracing of the radial artery which reveals the so-called pulsus paradoxus is eloquent of the same fact and a good sphygmogram of this condition, obtained under normal conditions, will be found in the paper to which I have referred. After the fixation of the right heart in the case we are discussing, therefore, we may assume that the pulmonary factor, in attracting and propelling the circulation, played an important part, and the invasion of the lungs and diaphragm in the last phase by new growth was no doubt one of the determining causes which shortened the life of the patient. The skiagram shows that in the earlier period, after there was clinical evidence of the fixation of the dextral chambers, the lungs were sufficiently normal effectively to aid the circulation by their aspiratory and propulsive power.

The remaining active forces to be considered are those resident in the left auricle and ventricle. The fact that the pulmonary veins are undefended by valves is sufficient evidence that the systolic force of the left auricle is not, in normal circumstances, great. It is a law that cardiac aspiration is directly proportionate to cardiac propulsion in any chamber of the heart. Newell Martin and Donaldson[16] showed that the right auricle under experiment with the opened thorax had no aspirative power sufficient to attract fluid without a certain amount of positive pressure being artificially supplied, but admit that in normal circumstances cardiac aspiration probably plays a part. That it must have played a very important part in the case under discussion can scarcely, I think, be called in question. The aspirative power of the weakest chamber in an opened thorax is, however, no measure of that of the strongest chamber with entire pneumatic surroundings. The aspirative influence of the left auricle in the case we are discussing, while not by any means negligible, cannot, however, be regarded as having been great, and this brings us to a consideration of the nature and influence of the action of the left ventricle in the circumstances in question. Admittedly the most powerful chamber in the heart, and exerting the highest degree alike of positive and negative pressure in the circulation during its action, it would be difficult to appreciate what it is capable of doing unassisted unless we were in a position to isolate its action without destroying the conditions under which the circulation is normally maintained. This, which is not possible to the experimental physiologist, appears to have been done sufficiently for valid argument by what I have termed the vivisection of disease in the present case. For how long it thus, so largely unassisted except by the aid of the lungs, served to attract and propel the circulation perfectly enough to avoid the evidences of retrograde stagnation cannot from the clinical evidence be stated precisely, but that it did so for a considerable period is shown, as I have mentioned, by the nature of the anatomical changes found after death. That the single left ventricle, when, too, it was tied down by adhesion to the altered pericardial and extra-pericardial structures, could not carry on the circulation indefinitely needs no further comment. Indirectly however, these additional hampering conditions in this case have a certain practical interest as tending to prove that pericardial adhesions in themselves, unaccompanied by excessive cardiac hypertrophy, cause no great disablement of the heart's action. The heart must for some time in this case have been held as in a vice by the changes described, and yet a regular and unretarded pulse was observed throughout the case. That this single ventricle did much, therefore, to maintain the circulation will not, I think, be questioned. It has, indeed, been estimated by physiologists that the total positive and negative pressures in the left ventricle are more than equivalent to the total positive and negative pressures in all the other chambers,[17] and a study of this case conveys the impression that the forces resident in the left ventricle are alone equal to the work of the circulation for, at all events, a considerable period.

The last point to which I shall refer before stating the conclusions which reasonably appear to flow from the data we have discussed is the regularity of rhythm and the ease which characterised the action of the left heart when that of the whole right heart was placed so greatly in abeyance. An examination of the pulse curve during the first and second periods of the case shows a general agreement between the temperature and the rate of the pulse and respiration. While lower figures for the pulse than those indicated in the curve were recorded, such as 80, 88, and 96, there was at no time any abnormal slowness or intermittency of pulse; no dropped beats or extra systoles were noted. During the third period in the fortnight preceding death the range of temperature was practically normal, with slight fluctuations below and above that point; the pulse had an average rate of 120, with higher figures, such as 135 and 140, a few days prior to death; and the respiratory rate, after quieting down in hospital, had an average of 40. During this period also there was at no time any undue retardation or intermission in the pulse—that is, in left ventricular systole.

Experimental physiologists have satisfied themselves "that every portion of the ventricular wall possesses all the conditions necessary for rhythmical activity,"[18] and, as we have seen, the only chamber capable of rhythmical activity in any appreciable degree in the later phase of this case was the left ventricle, the action of which could alone be registered. Physiologists have also satisfied themselves that the ventricle cut into several pieces, so long as the blood-supply to each is preserved by a narrow strip of muscle remaining uncut, shows a synchronous beat of all the portions unless the "muscular bridge" be divided, when each piece manifests its own rhythm.[19] This argues either that there is one controlling stream of muscular regulation or regularity of movement, or that the whole is regulated by the nervous system. Dealing as we are in our case with an entire ventricle, this partial or asynchronous contraction was not likely to occur, and the reduplication of the first sound of the heart observed on one occasion was probably due, as I have suggested, to incomplete fixation of the right ventricle at that time and to an asynchronism resulting therefrom. But His, Hering, and others have shown that division of the right auriculo-ventricular ring at a certain point, which involves division of the so-called "bundle of His," is followed by a dissociation of the normal auriculo-ventricular sequence of contraction, the auricles and ventricles taking on their own rhythm.

In our case, as we have seen, there was no possibility of

[15] Porter, quoted by Tigerstedt, p. 188; translation, 1906
[16] Physiological Papers, Baltimore, 1895, p. 94.
[17] Text-book of Physiology, Foster, p. 145, third edition.
[18] Tigerstedt, quoting Porter, op. cit., p. 185, Translation.
[19] Tigerstedt, op. cit., p. 187; and Lehrbuch, 1907, p. 238.

determining any discord between right auricular and left ventricular rhythm, because the former together with its venous entrances were immovably fixed in new growth. Nor can I assert that there was any positive evidence of interference with the bundle of His in the greater part of its assigned course. But curiously enough a nodule of new growth pouted from the coronary sinus after apparently traversing its whole length, and a corresponding portion of the musculature of the auriculo-ventricular ring whence the bundle is considered to arise was so abundantly infiltrated that the muscle fibres had completely disappeared. (Fig. 11.)

I could not discover in the septum ventriculorum in this case any abnormality sufficient to produce heart-block there, but in a case of dextral valvular disease which I observed in 1875 an ulcerative endocarditis which I minutely described had perforated the fibrous septum in the precise position which we now know to be assigned to the bundle of His, the penetrating granulations presenting in the left ventricle at the base of the non-coronary cusp of the aortic valve, and in this case causing no retardation or irregularity of ventricular action. The specimen from this case I presented to the Royal College of Physicians in Edinburgh but it has, unfortunately, been lost, and I append a reproduction of the original drawing I made of the specimen which shows the severity of the destructive process, which, I think, there is little doubt must have destroyed the delicate thread now regarded as conveying to the ventricles the impulse to contraction. (Fig. 13.) The illustration also shows that the

FIG. 13.

Ulcerative endocarditis of the right heart which penetrated the septum fibrosum. A, Right ventricle. B, Pulmonary artery. C, Left ventricle. *b*, *c*, *d*, Pulmonary valves. *a*, Tricuspid valve. *e*, Vegetation on septal cusp. *f*, Scattered vegetations.

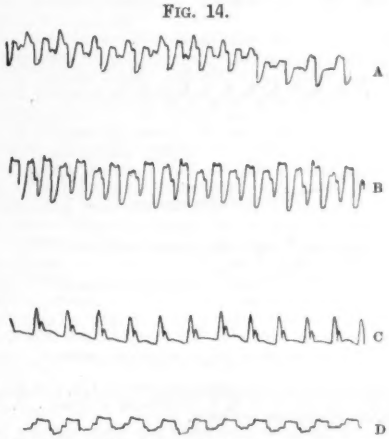
right ventricular strand of the bundle was likewise in all probability involved. Particulars of this case were published in the *Edinburgh Medical Journal* in 1879 and 1880.

But it may be suggested as regards the present case that, notwithstanding the pathological involvement of the pre-auricular rhythmic area to so great an extent, muscular impulses may still have passed to the auricle. In that case this area would be allowed to survive under circumstances which would be regarded by most clinical myogenists as annulling the functional activity of the auriculo-ventricular bundle, in the presence of any irregularity of ventricular action. If, on the other hand, normal auricular activity may exist without muscular rhythmic provocation from the veins, why not ventricular without auricular stimulation? As a matter of fact, and modified by mutilation, all will admit that the latter can and does exist independently, and what is of logical consequence is to determine precisely what such mutilation involves. For there is no evidence that the detached or crushed visceral nervous system is less alive than the detached visceral muscle under these circumstances. The only difference is that the visceral muscle is visibly contractile and the action of the visceral nervous system not visible, and that physiologists believe they fail in the detached organ to get true nerve response to electrical stimulation, while they can still provoke contraction in the contractile texture by that means. The irritability of the detached visceral nervous system may nevertheless for a time continue to possess an efferent energy. In other words, to adopt the language of the myogenist, the nerve cells *and perhaps nodal points* of the peripheral visceral nervous system, if not the fibrils themselves, may and probably do retain for a time an inherent property of stimulus-production, although the demonstration of this in the detached organ otherwise than by its continued vital manifestations may not at present be possible.

While, therefore, under any circumstances one could not be in a position to register any discord between the auricle and ventricle in the present case, one might certainly have expected to observe some retardation, intermittency, or irregularity of the left ventricular contraction if the efficient provocative to the rhythm of the latter was to be sought in the sino-auricular rhythm. Of this, as I have stated, there was at no time any evidence. Under normal circumstances we know that sino-auriculo-ventricular contractions follow in the order denoted by this term. It does not, however, follow that ventricular contractions and their normal rhythm and rate are dependent upon the previous events in the cycle. Situation, bulk, character, and innervation of the consecutive structures must be considered in this connexion.

In 1903 I had under my care for a considerable period a case of double mitral valvular disease which I have frequently spoken of as one of "jugular embryocardia" and which illustrated how completely detached in action the right auricle may be without affecting in the smallest degree the regular action of the ventricle. (Fig. 14.) In this case,

FIG. 14.



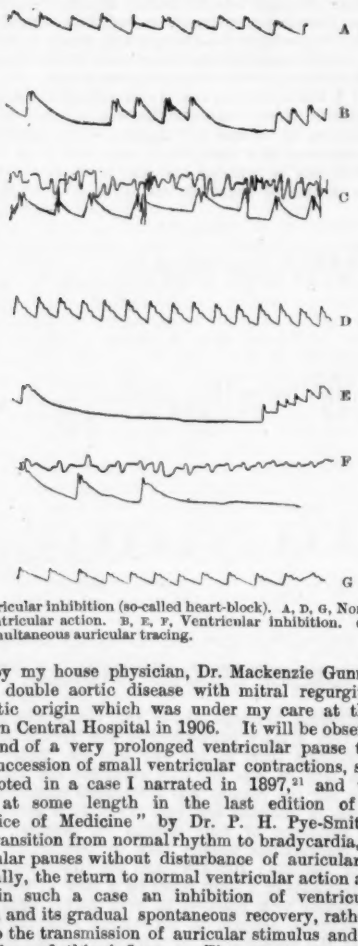
Auricular acceleration (jugular embryocardia). A, B, Jugulo-carotid pulse. C, Radial pulse. D, Cardiogram.

as the following tracings show, the veno-auricular contractions very greatly out-numbered the ventricular beats without affecting them in any way, and the "heart-block," as we now term it, was not only complete but apparently permanent, for the patient was discharged manifesting the phenomenon in question and had exhibited it continuously during a residence of four months in hospital. These auricular contractions usually bore to ventricular systole the ratio of 208–228 : 108–114; and the vibrations revealed by the movements of a light reflex on a spot of ink on the external jugular vein reached an even higher figure. We must, I suppose, assume, in accordance with the current belief, that the acceleration of auricular rhythm registered on the right side was also present in the left auricle. But what proof have we of this? The radial sphygmogram which is said at times to register left auricular contraction in bradycardia showed none, and the condition of the lungs was that frequently met with in heart disease without this sign being present. Moreover, does not the case we have

been discussing show that the chambers may have at least a very different degree of contractile power? But, assuming again that both auricles acted together, must we also assume that the stimulus to left auricular contraction by way of the pulmonary veins, for these are said not to be rhythmically contractile (Tigerstedt), was synchronous with that of the contraction of the large veins entering the right auricle? If so, is there a yet higher provocative to the rhythmical action of the heart than that at present assumed to exist? And if higher, how much so? May not the latter be synonymous with the nervous system? Fredericq,[20] it is true, arrived at the conclusion that the contraction of the left auricle was fractionally later than that of the right, but the morphologically bipartite nature of the mammalian heart appears to argue an independent contractile power on the part of that chamber which is certainly not contradicted by the double stream of cardiac innervation.

The dissociation of auricular and ventricular systole in cases of bradycardia has been too frequently discussed and illustrated to require much comment. I have known many auricular beats to precede ventricular systole in such a case, as the following tracings show. (Fig. 15.) They were

FIG. 15.



Ventricular inhibition (so-called heart-block). A, D, G, Normal ventricular action. B, E, F, Ventricular inhibition. C, F, Simultaneous auricular tracing.

taken by my house physician, Dr. Mackenzie Gunn, from a case of double aortic disease with mitral regurgitation of rheumatic origin which was under my care at the Great Northern Central Hospital in 1906. It will be observed that at the end of a very prolonged ventricular pause there is a quick succession of small ventricular contractions, similar to those noted in a case I narrated in 1897,[21] and which is quoted at some length in the last edition of Fagge's "Practice of Medicine" by Dr. P. H. Pye-Smith. The quick transition from normal rhythm to bradycardia, the long ventricular pauses without disturbance of auricular rhythm, and finally, the return to normal ventricular action appear to argue in such a case an inhibition of ventricular contraction and its gradual spontaneous recovery, rather than a block to the transmission of auricular stimulus and the final reassertion of this influence. The case was treated with strychnine and belladonna on this hypothesis and apparently with good effect. Must we in that case infer that it was the last of these auricular systoles which finally roused the sluggish ventricular muscle? Or did the latter awake without auricular nudging, the auricular impulse merely accidentally occurring towards the end of a prolonged refractory pause in ventricular action, which would in any case have passed off without any muscular impulse transmitted from above?

Inasmuch as, even after severance of the auriculo-ventricular bundle and the other textures involved in this operation, the ventricles assume their own rhythm, which may be regular or irregular, rhythmical or arrhythmical, may they not do so quite independently of the rhythm of the auricles? Is it manifest, under these circumstances, that these ventricular contractions need necessarily be regarded as in any way dependent upon a provocative muscular impulse either for their existence or their rhythm?

In the case we have been discussing it cannot but have been that an important section of the Hisian tract of primitive muscle near its origin, which is credited with important conductive functions, was destroyed by the invasion of new growth. But whether this be admitted or not, a bridge which cannot be used is as ineffective as one which has been blown up, and the fixation of the superior cava and coronary sinus, and in great measure of the right auricle, by new growth must have rendered the auriculo-ventricular bridge useless in this case. Nevertheless, left ventricular pulsation was neither retarded, intermittent, nor arrhythmical. It was quickened. The ventricle had to do the work of two chambers. On what, then, were the existence and regularity of left ventricular rhythm dependent under these circumstances? Its existence was no doubt potential to, and resident in, the muscle cells of the ventricle itself. Its sustained regularity was most probably due to sufficient integrity of the cardiac nervous system which continued to control the various manifestations of life in the cell, including "stimulus production," whatever this hypothetical term may imply. The nervous system was, as I have stated and so far as could be judged from anatomical appearance, well preserved on the whole, although in places imbedded in new growth.

It has been vaguely suggested, however, that the tract of His may not be merely conductive but also originative of muscular contraction along its whole course, and that its disablement in the auricle may not destroy its power of originating muscular contraction in the ventricle. But if this supposition were conceded as even imaginable, what becomes of the inherent rhythmicity of the great mass of cardiac muscle? The nature of the tract of His would then be akin to that of the nervous system, but as it is said itself to be innervated this cannot be so. As the rhythmicity of cardiac muscle, though maintained and controlled by the nervous system, is as undoubtedly inherent in it as the pepticity of the gastric cell is in it, or the peculiarity of any other organic cell in it, such a supposition can scarcely be seriously entertained. In truth, physiological experiment does not at present justify, even to the most convinced myogenist, any other conclusion than that the bundle of His is merely conductive and to the electric current seemingly in both directions—that is, from and towards the auricle. But the electric current is not the *vis nervosa* whatever else it may be. It is merely a laboratory imitation of it, like Gaskell's suspension method, the prick of a needle, or massage as an extraneous provocative to contraction or stimulus to cellular action. While a muscle hangs by a thread it is excited by it through the nerves.

If, then, auricles and ventricles have in the mammal an inherent and independent rhythm, as recent physiological experiment seems to indicate, although connected by a residuum of more primitive muscles fibres—the Hisian tract—they certainly also have a nervous system of their own, although the latter, both in the auricles and in the ventricles, is but a portion of one common nervous system. It seems, therefore, quite possible that the nervous system, now in the auricles and again in the ventricles, may fail in some respect to control the stimulus production, irritability, conductivity, and contractility, to use the descriptive terms applied to manifestations of the life of the cell, and thus originate irregularities and arrhythmias in one or other or in both sections of the heart without any necessary failure of the residual tract which is credited with the function of conductivity and in the opinion of some with even wider powers. Because the right sino-auricular section is the *ultimum moriens* of the heart *in situ*, it does not follow that

[20] Archives Internationales de Physiologie, vol. iv., p. 57.
[21] Cardiac Failure, p. 56.

it is the *primum mobile* in relation to the ventricles *on the action of which, and not on that of the auricles, the maintenance of the circulation and preservation of the life of the organism chiefly depend.*

The practical point which a study of our cases suggests is, that a man does not die from ventricular failure because cardiac motion from the veins and auricles towards the ventricles is blocked or prevented from reaching the latter with normal ease and regularity, but because the independent motile power of the ventricle has been abolished, by the failure on its own part to produce the stimulus to contraction in a sufficient mass of its substance, and with sufficient regularity, to maintain its effective contraction. The regulation of this property of cardiac muscle and of every other manifestation of its life, should surely, like the regulation of all other functions, depend upon the visceral nervous system and its central sources. Indeed is it not admitted to do so? The detached organ has detached with it all its constituents and the artificial circulation which keeps alive muscle for a time after evisceration must also afford pabulum and stimulus to the nervous system of the detached viscus, which, however, according to the present views of some physiologists, is incapable of influencing the cardiac muscle under these circumstances.

But the myogenist rests himself greatly on His's observation that the tube-heart of the embryo pulsates prior to its innervation. Does it do so prior to the genesis of the central nervous system? No. This being so, we cannot tell what the relation of the embryonic centre to the periphery is. There may be an influencing from a distance, so to speak, for ought we know or can know to the contrary. That is, the growing nervous system may influence rhythmicity in the growing cell, even in the absence of actual anatomical connexion between the central and peripheral visceral nervous system. What determines the direction in which the nerves grow into an organ? The question cannot, of course, be answered, but it is not unreasonable to suppose that current from the centre to the cell station, without definite structure, may precede visible organisation.

The general conclusions, then, which a study of our cases suggests is, that man lives on his ventricles and chiefly on his left ventricle, not upon his veins or auricles, and that the normal action of the ventricles is dependent upon the healthy action and interaction of the three fundamental factors in organic life, blood, cell, and nerves, a trinity in which the blood supplies the force necessary to the production and continuance of vital action; in which the cell is the specific agency or mechanism for a given organic act, and in which the nerves regulate alike the production of the motive force and the degree and regularity of its manifestation in the specific cell.

A corollary to this conclusion is, that as man lives on his ventricle, not on his auricle, the examination and registration of ventricular action are of greater practical importance than a similar investigation of the action of his veins and auricles, although as a detail these points have a scientific interest, as showing whether the preventricular and nonlethal portion of the muscular circulatory mechanism is quiescent or tumultuous, extinguished, in abeyance, or in action, any of which it apparently may be, without the death of the organism, if the conclusions drawn from the study of our cases be correct. Even, however, if this conclusion be in the main correct, and doubtless some will not concede this, does it follow that all the careful and exact scientific and clinical observation of the preventricular mechanism is "love's labour lost" from the point of view of practical utility? By no means. For, "facts are chiels that winna ding and daurna be disputed," and it is a fact that an attenuated muscular connexion of peculiar character, of the existence of which we were not aware until His demonstrated it, does pass from the right auricle to the ventricles. Moreover, it is apparently also a fact that the peculiar structure has a widespread distribution as shown by Tawara, and finally that clamping and cutting the chain before it passes into the ventricles modify the relative actions of the auricles and ventricles. Of these facts the most dubious of interpretation is the last. The question, as I have said, is, What is clamped and cut? Is it muscle only? To this I think the answer is in the negative, and here the myogenist and neurogenist part company. Possibly, and even probably, both are in a measure correct in their views, and wholly so neither.

NASO-ANTRAL POLYPUS.

BY A. BROWN KELLY, M.D., D.SC. GLASG.,
SURGEON FOR DISEASES OF THE THROAT AND NOSE, VICTORIA INFIRMARY, GLASGOW.

THOSE who have seen many cases of nasal polypus must occasionally have met with the variety which has been termed naso-pharyngeal or choanal polypus. This neoplasm presents several distinctive features. The patient in many instances is a child. The neoplasm is single. If small, it is situated in the posterior part of the nasal fossa; if large, it projects into the naso-pharynx and may even hang below the palate. A lobe or prolongation may extend forward in the nose and reach the anterior naris, so that the case may look like an ordinary one of nasal polypus. In spite of the unilateral character of the growth there is, as a rule, no associated discharge of pus. Removal through the mouth will probably suggest itself as most feasible when the polypus is large. If caught firmly it can be torn away entirely, so that on examining the naso-pharynx not only is no trace of the growth seen but even the bleeding point of attachment is not discoverable. A large cyst is usually present in the polypus. Recurrence is not uncommon. With such well-marked characteristics it is surprising that these growths failed to excite interest and that their antral origin escaped detection until pointed out by Professor G. Killian[1] about three years ago.

Since the publication of Killian's paper I have had 15 cases of naso-antral polypus. In 11 of these the antrum was opened and the connexion of the lining membrane of the cavity with the growth was demonstrated. In the remaining four cases the conditions were such as to put almost beyond question an antral origin. I shall briefly describe some of the more prominent features observed and the treatment employed in these cases.

Age and sex.—A striking peculiarity and one that distinguishes this class of polypus from the common or ethmoidal type is the patient's age. Of 100 consecutive cases that I have noted of ordinary polypus uncomplicated by accessory cavity suppuration, in only three was the age under 20—namely, 16, 17, and 19 years. On the other hand, of my 15 patients with naso-antral polypus 10 were under 20 years of age. The youngest was 5 and the others were 9 (two), 10, 12 (two), 15, and 16 (three) years old respectively. The ages of the remaining five were between 23 and 35 years; two of them had had a polypus removed before the age of 20. Seven of the patients were males and eight were females.

Onset.—Some of the patients gave a history of the symptoms having become quickly marked. Others within a few weeks of feeling obstructed had seen the polypus at the nasal orifice. In most a large growth was found although symptoms had been present for only two or three months previously. It would therefore appear that the polypus may develop rapidly.

Symptoms.—Two symptoms were almost invariably present—namely, snoring and thick speech. A watery discharge from the affected side was sometimes complained of. On one occasion a quantity of clear fluid ran from a patient's nose after sneezing and the obstruction was relieved for a few days afterwards, a cyst having probably ruptured. Enuresis was troublesome in a boy aged nine years. This symptom had set in six weeks previously, coincidently with very marked nasal obstruction, on the removal of which it disappeared entirely; he had never before been thus afflicted. It is noteworthy that in no instance was pain in the cheek or other symptom of intra-antral pressure complained of.

Appearances in nose and naso-pharynx.—When the growth was small it was indistinguishable from an ordinary polypus situated below the posterior half of the middle turbinate. At a more advanced stage there was much the same appearance anteriorly, but by posterior rhinoscopy the polypus could be seen passing backwards and simulating the hypertrophied posterior end of an inferior turbinate, or, when larger, occupying more or less of the naso-pharynx and even hanging down behind the soft palate. In about half of my cases there was, in addition to the main mass of the polypus just described, a prolongation forward which in several instances reached as far as the anterior naris. I have

[1] The Origin of Choanal Polypi, THE LANCET, July 14th, 1906, p. 81.

hitherto met with no case in which ethmoidal or other polypi were present in either nasal cavity; the designation *solitary* is therefore applicable to the naso-antral polypus. A scanty purulent discharge was detected in two cases.

Transillumination.—This test was tried in nine cases—in eight of which the antrum was subsequently opened—and in all the affected cavity transilluminated well. For the sake of brevity particulars as to the crescentic tache, pupil and subjective light sensation in each case are omitted. In two instances the normal side was rather the brighter; these were the cases in which a purulent discharge was observed in the nose; in one of them the antrum was not opened, in the other besides a cyst filling the lumen of the cavity a purulent cyst and thickened lining membrane were found. In three cases transillumination on the two sides was equal; in two of these a cyst occupied the cavity; in the third numerous closely packed polypi were present. In four cases the antrum on the affected side transilluminated better than that on the normal side; in all of these a large cyst filled the cavity, and in one instance several polypi of the lining membrane were also present.

From the point of view of the intra-antral condition the results of transillumination may be briefly summarised as follows. In the eight cases in which the test was applied and the antrum subsequently opened a cyst was found filling the cavity in seven instances. In all of these, with one exception, transillumination on the affected side was equal to or better than that on the other side. In the exception noted, besides the cyst there was general thickening of the lining membrane, and transillumination on this side was less bright than on the other. In the eighth case the antrum was almost filled with polypi and transillumination on the two sides was equal.

The fact that an antrum containing one or more cysts or polypi transillumines as well as, or better than, the cavity on the other side, which is presumably normal, has been commented upon by several observers but no explanation has been forthcoming. A dental or maxillary cyst which has invaded the antrum may favour transillumination by causing thinning of the bony walls. No such factor is in force in the case of cysts and polypi of the antral lining membrane, these being delicate growths which are incapable of causing bony absorption.

I might here refer to two other phenomena of transillumination which have seemed inexplicable. The first is that observed after thoroughly removing the thickened lining membrane of an antrum when the cavity, instead of transillumining normally, as one would expect, remains dark. A view which cannot meet with general acceptance has been hazarded that the obscurity is due to changes in the bone. The second phenomenon is that occasionally noticed during an acute non-suppurative antral catarrh, when the cavity transillumines badly. This is usually ascribed to swelling of the lining membrane. If we consider, however, the extreme thinness of the normal antral mucosa and that serous exudation into its substance would interfere little, if at all, with the transmission of light, this view cannot be regarded as satisfactory.

All three anomalous appearances can be explained, I believe, by taking into account the optical condition within the antrum. In the normal cavity the concave bony walls and the smooth, shining membrane cause a condensation of light and favour transillumination. When catarrhal, the lining membrane becomes velvety, dull, and loses its reflecting power, so that the light entering the antrum is largely absorbed and transillumination is diminished. After the muco-periosteum has been removed the innumerable minute irregularities on the bare bony walls scatter the light passing into the cavity so that transillumination is again less. On the other hand, in the case of a cyst transillumination is favoured by two factors: first, the decrease of diffuse reflection by the obliteration of the irregularities of those portions of the antral wall with which the sac is in contact; and second, the condensation caused by refraction due to the presence of fluid in the sac. For pointing out the latter factor I am indebted to my friend Dr. A. Freeland Fergus.

In further support of the explanation offered I may mention that I have transillumined patients with naso-antral polypus immediately before operation and have found the affected side the brighter. The antrum has then been opened in the manner described below, and on transillumination being repeated the same result has been obtained. A cyst which filled the antrum has next been removed and on transillumining immediately afterwards this side instead of being the brighter, as previously, has been found to be much the darker. Several weeks later, on again applying the test, both sides have transillumined equally well; the assumption is that by this time the lining membrane had regained its polish which the pressure of the cyst had temporarily destroyed.

Treatment.—I have employed two methods of treatment. The first aims mainly at the removal of the nasal portion of the growth. If small, it is caught directly by a snare; if somewhat larger and hanging into the naso-pharynx, it is drawn into the nose by means of Lange's hook and then caught in the snare; if very large, it is encircled by a loop passed upwards from the mouth. This last procedure is best accomplished by using a snare tube curved after the fashion of naso-pharyngeal probes or forceps. The wire loop of a suitable size and shape is doubled downwards and backwards over the edge of the cannula; the latter is then passed upwards between the posterior wall of the pharynx and the polypus; on tightening the loop, if properly adjusted, passes upwards between the soft palate and growth and thus encircles the latter. In whatever manner the polypus is caught it should not be cut through but merely constricted until a good grip is obtained and then torn away. I have thus often removed the intra-antral together with the entire nasal portion of the growth; the former has consisted, in the great majority of cases, of the whole or a portion of a collapsed cyst. This method is not always satisfactory on account of the frequency of recurrence. In seven of my 15 cases the polypus had been removed at least twice. One boy was operated upon in 1897, 1898, 1899, 1900, and 1907; another in 1898, 1899, 1900 (twice), and radically in 1906; while a girl, between 1900 and 1907, when the radical operation was performed, had a polypus removed seven times. Mr. Richard Lake[2] has reported a similar case.

Such results led me to adopt the second method of treatment. This consists in opening the antrum, determining the intra-antral attachments of the growth, and completely removing these together with the polypus in the nose. The mode I employ of gaining access to the antrum is the same as that previously recommended by me.[3] The operation is performed under local anæsthesia excepting when the patient is a child. A weak solution of cocaine, or one of its substitutes with a little adrenalin, is injected into the soft tissues over the canine fossa. An incision is made in the gingivo-labial fold, the lower part of the facial wall of the superior maxilla is exposed, and a small opening is bored in this by means of a sharp-pointed trocar and afterwards enlarged by a blunt-pointed trocar. The use of the latter instrument lessens the risk of rupturing an intra-antral cyst when present and of injuring the opposite bony wall. The cavity is then examined by the aid of an antral speculum (illustrations of this and of other instruments used may be seen in the paper just referred to).

In 11 cases thus inspected the following were the intra-antral conditions found. A large cyst occupied the entire cavity in seven; the lining membrane was polypoid in two and generally thickened in two. In ten of the cases one large ostium accessorium was present, while in the eleventh there were two separated by a thin fibrous band. The appearances were practically the same in all the cases in which a cyst was found. When the cyst wall had escaped injury from the trocars it bulged into the opening in the bone as a smooth fluctuating membrane. By means of a director the cyst wall was easily separated from the antral lining membrane. In the course of the manipulations the cyst was usually ruptured and collapsed and then its connexion through the accessory opening with the polypus in the nose became apparent. Sometimes, however, while boring into the antrum the cyst was also opened and a considerable amount of fluid escaped. On inspecting the cavity it was then seen to be lined with a moist, pale polypoid tissue which might have readily been mistaken for the altered antral lining membrane; with care, however, it could be stripped from the latter. In two cases one or more small cysts were found in addition on the inner wall near the accessory opening and in one of these the lining membrane was also thickened. In another case several polypi were present in

[2] A Case of Cystic Disease of the Maxillary Antrum, THE LANCET, March 14th, 1908, p. 783.

[3] Inspection of the Antrum of Highmore, THE LANCET, Sept. 17th, 1904, p. 819.

the posterior part of the cavity. In the others the lining membrane was normal. In the four instances in which no cyst was present the lumen of the cavity was considerably reduced by general thickening of the lining membrane in two cases and by large flat polypi in two cases. The treatment of these conditions varied as required from curetting the affected areas to the removal of the entire lining membrane.

The intra-antral conditions having been dealt with the polypus in the nose or naso-pharynx is gripped and torn away in the manner already described. By this plan the polypus, together with the collapsed antral cyst, or more or less of the thickened antral lining membrane is obtained. The antrum is again carefully inspected, particularly around the ostium accessorium, and any small cysts or polypoid proliferations that may remain are destroyed. The opening in the gingivo-labial fold is allowed to heal up. If there has been much bleeding in the antrum syringing of the cavity is carried out for a few days. Time will show whether these measures are sufficient or whether in a subject with a large ostium accessorium and a lining membrane that has given rise to one or more cysts the removal of the entire lining membrane is not necessary. It should be remembered that antral cysts may be present which are so small as to be visible only on closest examination.[4] The typical naso-antral polypus after removal is found to have a characteristic appearance. The naso-pharyngeal portion is firm, rounded, sometimes partially bi-lobed, often cystic, and continued directly into the nasal portion which is softer and like an ordinary mucous polypus. The antral portion passes off at right angles to the preceding two; it is delicate, succulent, and consists of a cyst wall.

Pathogenesis.—From a consideration of the foregoing facts it is evident that the choanal or naso-pharyngeal polypus takes its origin in the antrum, and hence is better termed naso-antral polypus. The morbid condition present in the cavity is most frequently a cyst, but it may also be a polypus or general thickening of the lining membrane. A large opening of communication between the antrum and nose is essential. In all of my cases this has been supplied by an ostium accessorium, although it is conceivable that the ostium maxillare might serve the purpose. Through the opening a portion of the cyst, polypus or thickened membrane protrudes and gradually enlarges. Development proceeds in the direction of least resistance—namely, towards the naso-pharynx and pharynx. Owing to the constriction at the ostium there is a tendency to œdema of the polypus and to the formation of false cysts in its substance. In a previous communication I pointed out that antral cysts most frequently spring from the inner wall of the cavity and that in subjects with antral cysts an accessory opening occurs four times oftener than usual.[5] Two of the conditions necessary for the development of the naso-antral polypus are thus commonly found associated.

In conclusion, I might mention that I have also met with recurrent cystic polypi growing down between the septum and posterior part of the middle turbinate. It is highly probable that these originate in the sphenoidal sinus, but so far I have had no case in which I felt warranted in removing sufficient of the ethmoid to determine this point.

Glasgow.

[4] Dmochowski, Z.: Archiv für Laryngologie, Band iii., p. 255.
[5] A Contribution to the Pathology of the Antrum of Highmore, Glasgow Medical Journal, October and November 1904.

FIVE YEARS' EXPERIENCE WITH DUBOIS'S APPARATUS FOR ADMINISTERING CHLOROFORM.

BY PAUL M. CHAPMAN, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO THE HEREFORDSHIRE GENERAL HOSPITAL.

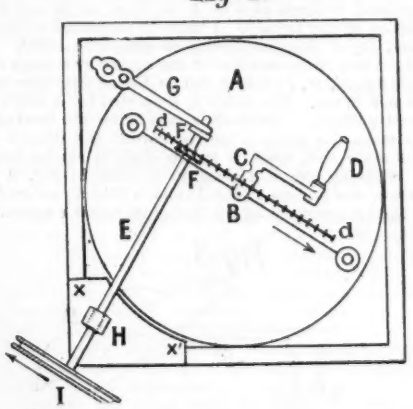
I HAVE now had upwards of five years' experience in the induction and maintenance of anæsthesia for surgical operations by means of Dubois's apparatus. I began using it with so much anxious timidity and for the first few years was so conscious of my own inability to speak with authority owing to my cases being neither sufficiently numerous nor sufficiently varied that, beyond calling attention to the fact that the apparatus was in use and possessed certain merits of its own, I have published nothing further, contenting myself with using the apparatus in every possible case and, as far as I could obtain them, in cases of every conceivable difficulty. This has been easier of late, as it is in just these anxious and difficult cases that my services have been more and more required. They now amount to many hundreds and I may claim the hearing due to one with five years' varied and practical experience of his method.

The essential part of the apparatus I need not explain again in detail, as I have described it very fully already.[1] It is, however, advisable to call attention again and again to certain points. 1. That the mixture of $CHCl_3$ with air is supplied ready made from a small gasometer by propulsion through a mask which has a free outlet. 2. That the method is therefore an open method. 3. The supply of the mixture is continuous and is altogether independent of the inspiratory efforts of the patient. 4. That the percentages of $CHCl_3$ with air are real percentages and do not vary, plus or minus, more than $\frac{1}{10}$th per cent., as proved by numberless densimetric experiments.

One innovation of my own by which the piston which expels the mixture from the gasometer is kept in motion by a movement of the operator's foot was introduced in the first year, and I have used it ever since. It has worked admirably, and I have never had any wish to change it or thought it desirable to improve it in any way. This innovation I had better describe in some detail as the movement of the foot is so slight that it causes no fatigue to the operator when sitting on a suitable stool. The movement becomes quite automatic with use, thus leaving both hands and the whole attention free during an operation which may last from one to two hours.

Without this addition the piston of Dubois's apparatus is set in motion by a hand crank acting on the upper edge of a cogged wheel. Both crank and wheel are situated to the right of the uprights fixed upon the gasometer where the tube is connected with the face-piece, leading off to the left. The foot-piece must also be to the left, and must be near the level of the floor, while the apparatus must be within reach of the administrator's hand when he wishes to change the percentages of the vapour he is giving. A horizontal shaft is therefore run across the surface of the cylinder from left to right, at right angles to the cogged gear-wheel which moves the piston, and anterior to the piston shaft. This horizontal shaft at its right extremity is furnished with cogs which engage with the cogs of the gear-wheel, as seen in Fig. 1.

Fig. 1.

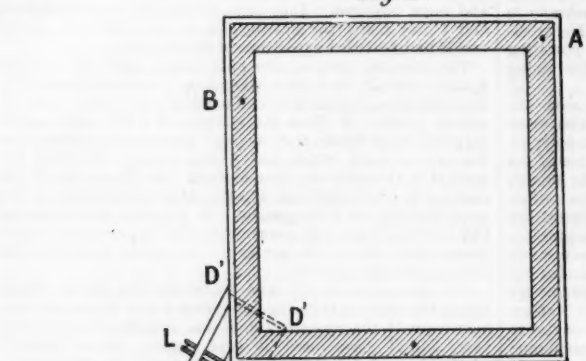


Dubois's apparatus viewed from above. A. Cylindrical gasometer. B. Piston rod, moved by the crank handle D, engaging by pinion the large gear-wheel d—d on its upper edge by cogs at C.

To dispense with using D, and in order to substitute a foot movement, a steel shaft E, carrying cogs at F, is placed under the wheel d—d, so that when the shaft E is pushed home into a hole in the clamp G the cogs at F engage on the under edge of the wheel d—d. The shaft E runs through a bearing which is fixed upon the corner plate H. This plate is detachable and is pinned to the corner of the box at x and x' by a thumb-screw at x'. At its other end, projecting over

[1] THE LANCET, Jan. 16th, 1904, p. 153.

Fig. 2.

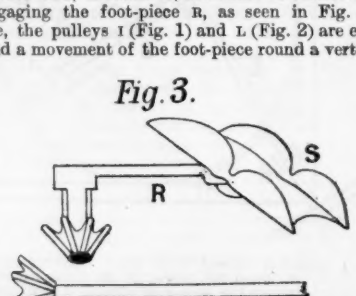


Upper view of the iron base on which the apparatus rests when in use

the angle of the box, the shaft E carries a grooved pulley I. The shaft E, with the pulley I and the corner plate H, form one detachable piece which can be adjusted in a moment.

The square frame is made of angle-iron. In this the wooden lid of Dubois's box rests when inverted. Upon this basis the apparatus proper (Fig. 1) is placed and is clamped there by the ordinary fastenings of the box, forming a structure 21 inches high. The square can be supported on the ground by three pins at A, B, C, so as to suit the inequalities of any surface. I have it supported at the four corners, one of the pins having an adaptable screw. D, D, is a light iron frame attached to the square by a hinge at the dotted line D', D', so that it can be folded under the square when not in use. The shaft K, supported by D, carries the grooved pulley L. The shaft is sunk below the level of D so as to make the pulley L project beyond the sides of D, D. At its other end, towards M, the shaft K carries bevelled cogs engaging the foot-piece R, as seen in Fig. 3. If, therefore, the pulleys I (Fig. 1) and L (Fig. 2) are encircled by a band a movement of the foot-piece round a vertical axis

Fig. 3.



S, Foot-piece attached to R by a ball-and-socket joint, allowing free movement for the ankle. The foot-piece, with lever and cogs, is detachable. When in use the cogs are dropped upon a vertical pin and thus engage with K.

in the direction of the hands of a clock will set in motion K round a horizontal axis in an opposite direction. This movement is imparted to the pulleys L and I and to the cogs at F, producing a movement of the gear-wheel d—d in the direction required.

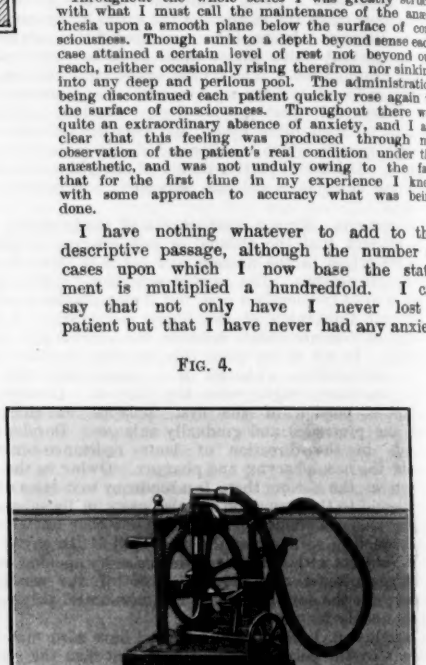
The adoption of a circular movement of the footpiece was the outcome of many experiments. It requires the minimum of muscular exertion, as the weight of the leg rests on the footpiece, and the circular movement is of small radius. Six revolutions of the footpiece are sufficient for the supply of four litres of mixed vapour of $CHCl_3$ and air. I have described the arrangement with some detail, as by its introduction the one possible objection to the use of Dubois's apparatus in hospital disappears. The whole apparatus is now under the command of the administrator, leaving both hands and the attention free. A reproduction of a photograph (Fig. 4) is given, showing the instrument ready for use.

In 1904, describing my earliest experiences, I used these words:—

> Throughout the whole series I was greatly struck with what I must call the maintenance of the anæsthesia upon a smooth plane below the surface of consciousness. Though sunk to a depth beyond sense each case attained a certain level of rest not beyond our reach, neither occasionally rising therefrom nor sinking into any deep and perilous pool. The administration being discontinued each patient quickly rose again to the surface of consciousness. Throughout there was quite an extraordinary absence of anxiety, and I am clear that this feeling was produced through my observation of the patient's real condition under the anæsthetic, and was not unduly owing to the fact that for the first time in my experience I knew with some approach to accuracy what was being done.

I have nothing whatever to add to this descriptive passage, although the number of cases upon which I now base the statement is multiplied a hundredfold. I can say that not only have I never lost a patient but that I have never had any anxiety

FIG. 4.



The instrument ready for use.

of the smallest kind arising directly from the anæsthetic. Of late it has been increasingly used in all the most difficult cases which present themselves in hospital. I have even eagerly welcomed the opportunity of administering $CHCl_3$ by this method in the most unfavourable cases, though knowing that any death occurring on the operating

table during its use would in the minds of some be sufficient argument that the method was dangerous. But there has been no break in my series of cases, which have been uniform in their behaviour when once anæsthetised, whether as subjects for anæsthesia they were good, bad, or indifferent.

The routine which I have adopted with adults is to give 1·2 per cent. for one minute, then 1·6 per cent. for one minute, and then 2 per cent. for seven minutes, by which time I should expect the patient to be fully anæsthetised unless he were a very large man or an alcoholic, or unless the inspirations had been very shallow and ineffectual. After the skin incisions have been made the patient is allowed to breathe 1·2 per cent. continuously throughout the whole operation, unless special circumstances make a higher percentage desirable. It has been to me an ever-increasing pleasure to give the anæsthetic. The surgeon never has any cause of complaint, and I know that by this method $CHCl_3$ can be given with absolute safety. The minor advantages are very great and these are best illustrated by examples.

1. *Freedom of hands.*—I was lately able to keep up subdiaphragmatic pressure on the heart with the left hand during a long and difficult ovarian operation upon a patient almost *in extremis*. The patient required the most constant attention, which could be freely given because there was no anxiety as to the anæsthetic. It was being constantly supplied in an unvarying 1·2 per cent. vapour throughout an operation lasting one and a half hours. The vapour was present in any quantity and the percentage could not possibly vary, unless it were voluntarily increased by one's own active interference.

2. *Administration through the nose owing to the patient's position.*—A large and heavy fat man, aged 64 years, with atheromatous vessels has been anæsthetised. He then has been turned over on to his left side in a semi-prone position for an operation on the rectum. His left cheek lies on the operating table and no mask can be adjusted to his face. The tube, of a diameter of half an inch, is substituted for the mask. Its end is furnished with a wide-mouthed india-rubber piece (adapted from a Politzer's nose-piece) which is inserted into the right nostril. Owing to the large diameter of the tube and the propulsive power of the machine a stream of vapour is supplied in ample quantity to maintain complete anæsthesia for any length of time without difficulty.

3. *Mixture of $CHCl_3$ vapour with oxygen and air.*—The same case may be used as an illustration. Owing to the patient's degenerative condition and to the attitude imposed upon him a dangerous condition of cyanosis arises. A stream of oxygen is directed by an assistant over the inlet to the gasometer. The $CHCl_3$ vapour is thus mixed with oxygen and air until the cyanosis disappears, the percentage of $CHCl_3$ and the mode of administration being unaltered in any way.

4. *Operations on the mouth.*—Nasal administration is possible with a Junker's inhaler, it being a propulsion apparatus, but it is not possible to maintain anæsthesia with it owing to the small stream of vapour which it is possible to supply. Moreover, the hands are both occupied and the one squeezing the bag is rapidly tired. I know of no apparatus which will maintain anæsthesia through the nose really efficiently except Dubois's apparatus.

5. *Efficiency of the machine.*—I have been asked whether the instrument is not liable to get out of order. It has never needed any repairs or alterations nor any new part supplied since I first had it five years ago.

We have, therefore, a means of giving $CHCl_3$ in a percentage volume of unvarying accuracy and of unlimited quantity by an instrument which does not get out of order and which can be used in all cases, in some of which it possesses advantages over all other forms of apparatus. While it is not my purpose to decry other forms it is necessary to reiterate that the constant vapour supplied by Dubois's apparatus is supplied in percentages so accurate that they do not vary from those assumed by more than 1-10th per cent. Also that the vapour is supplied by propulsion and therefore the supply is independent of the inspiratory efforts of the patient. The vapour is not drawn into the mask by suction, a suction dependent solely on troubled inhalations within an accurately adapted mask, the chief defect of the Vernon Harcourt apparatus.

The principal objection urged against Dubois's apparatus is its bulk. Its base is 12 inches square, and it weighs 30 pounds exactly. The oak lid weighs 9 pounds. My own accessories as above described weigh altogether 8½ pounds. My whole apparatus therefore weighs nearly 50 pounds. It is perfectly portable, without assistance, for short distances, upstairs and downstairs, and from house to carriage, and I have taken it about with me in private practice without any trouble, but there is no doubt that its weight is an inconvenience in transport and that this may interfere with its general use. It would be possible to lighten it of from 12 to 15 pounds by adopting other than the present thick and heavy oak casing, and I certainly think that this would be desirable for general purposes. The objection does not apply to work in hospital, where it might be always available and ready for use, and where solidity is an advantage.

I have been giving examples of cases rather than minute descriptions, as these are often very tedious, most of the detail being irrelevant. The advent of a succession of house surgeons may equally well illustrate the attitude of teachers and the results of their teaching. Most of those who come to us are altogether ignorant of the administration of $CHCl_3$ in percentages with air. Now and then we get a man who has seen, but rarely one who has himself used, the Vernon Harcourt apparatus. All these young men have to be educated and taught that when once anæsthesia has been fully induced a patient can be kept anæsthetised indefinitely if inhaling a constant mixture of air and chloroform in the proportion of 1 to 2 per cent. Even when convinced by their own experience of the merits and complete safety of Dubois's apparatus they will resort, especially in slight surgical cases, to the "open" method of giving $CHCl_3$ on a lint mask with a drop-bottle, as if "trivial" cases required less care. It is difficult to blame them. Have they not the knowledge that in the great schools of medicine the teachers whom they respect do not require of them practical observance of the law of percentage vapours? A complaisant house surgeon, having the teaching of a great hospital at his back, will naturally serve an impatient surgeon by any method which is most ready and convenient. He has never been taught otherwise. We have had deaths in my own hospital which I at least can never think of without shame. Knowing by physiological experiment and by long practical experience on man that the administration of $CHCl_3$ by Dubois's apparatus is both easy and safe, one might at least expect some knowledge of it amongst those who teach—a knowledge based on their own practical experience and imparted to their pupils.

Hereford.

AN UNUSUAL CASE OF GERMAN MEASLES.

By G. C. GARRATT, M.D. CANTAB.,

LATE ASSISTANT RESIDENT MEDICAL OFFICER AT THE LONDON FEVER HOSPITAL.

IN view of two papers read before the Royal Society of Medicine by Dr. E. W. Goodall and Dr. E. H. Corbin in January, 1908, and of the discussion thereon, the following case, which occurred in my practice the previous year, seems worthy of publication. It will be remembered that the year 1907 was one of unusual prevalence of rubella, and I would add that not only were there many cases in this district but on April 26th the sister of the patient had a mild febrile attack with adenitis, which I suspected to be of this nature although no rash was observed.

The patient was a boy, aged six years, in good general health, but retaining a slight double mitral bruit resulting from previous endocarditis of doubtful origin. He was out rather late on May 16th and was supposed to have caught cold. On the next morning he seemed feverish and his temperature, taken by a trained nurse, was 102° F. No special symptoms were noticed, but he was kept in bed and given a purgative which acted thrice. I saw him on May 18th. He did not look ill and had had no headache, vomiting, or sore-throat, but a slight dry cough. The face was a little flushed but there was no rash; the tongue was slightly furred. The posterior cervical glands were palpable, but had been so before, and no other glands were affected. The heart was as usual, and there were no other abnormal physical signs. The pulse was 132 and the temperature was 104°. On

the 19th the above-mentioned glands were tender, but otherwise there was no change. I predicted a rubella rash presently. The temperature was 104·4°. On the 20th there was still no rash nor fresh physical signs, but the heart apex had moved out and the murmurs were louder. I took a sample of blood for Widal's reaction, and mentioned the possibility of endocarditis. In the evening a consultation took place, and the consultant inclined to a diagnosis of ulcerative endocarditis or latent pneumonia. We, however, agreed that the boy did not seem ill enough; indeed, he complained only of want of solid food, and so we told the relatives that we did not know what was the matter and could only await events. The Widal reaction proved negative. The temperature fell to 100·5°. On the 21st there were no new physical signs. As the temperature was falling without appearance of rash I finally abandoned altogether my original diagnosis and inclined to that of latent pneumonia, probably influenzal. On the 22nd a quite typical rubella eruption of small pink maculæ appeared on the face and body. There were no fresh glands. The temperature was 100°. On the 23rd the rash on the face was fading and no longer macular; there were well-marked maculæ on the limbs. The temperature was subnormal. On the 24th the rash was fading all over. Convalescence was rapid and uneventful and the heart soon returned to its usual state. No signs of pneumonia ever appeared.

This case is interesting on account of the duration and severity of the prodromata, in spite of almost entire absence of adenitis, normal fauces, and but trifling catarrh. It is commonly taught that in rubella prodromata are exceptional and if present last only 24 hours. This view was endorsed by Dr. Goodall in his paper and by most of those who discussed it, one going so far as to assert that "absence of prodromal symptoms" was "constant." Dr. F. N. Hume and Dr. C. B. Ker dissented from the general opinion, and I would add my testimony to theirs. During a residence of seven years and a half in that institution described by Dr. F. F. Caiger as "far and away the most important in respect to rubella in this country," I found that a history of malaise, with perhaps stiff neck, sneezing, or slight sore-throat, extending over several days or even a week, was, in adults at any rate, not uncommon, and certainly no evidence against the diagnosis, the prodromata of morbilli being indeed more intense but often of less duration. In this case the patient was under close observation, so that pulse and temperature are recorded, and I think it not unlikely that had similar care been possible many rubella patients would have exhibited some disturbance of one or both of these during this period of malaise. I would draw attention to the degree of fever here attained and add that I have seen certainly two, if not more, cases of rubella previously with temperatures of 104° or over, and many where fever was well marked. Such cases are almost invariably less ill than one would expect from the febrile movement, and protest strongly against the diet usual under such circumstances; moreover, the temperature falls rapidly after the rash appears. The question of infectivity was discussed, and the general opinion was expressed that this was slight and of short duration. In this connexion I would observe that the usual period of detention for rubella at the London Fever Hospital was but ten days, yet I only once saw a "return case," and here the infector had himself a relapse after discharge, a most rare event. Nevertheless medical officers of schools and general practitioners will, I think, agree that in the early stages the disease may be highly infective, and would hesitate to endorse the opinion of Dr. Corbin that this stage lasts but 24 hours after the rash appears if no faucial catarrh remains. I recall a case of rubella admitted under certificate of scarlet fever and isolated when there was no other case of rubella within the walls. The medical officer in charge and the nurse both caught it, and the latter gave it to another nurse. No such sequence of infection occurred during my residence in respect to any other disease admitted. It is true that rubella and morbilli were often treated in the same ward, and accidents rarely happened either to patients or nurses, but the rubella patients were nearly all adults and required little nursing; for a short time they were kept in bed, then they were allowed out of doors, and soon after discharged. Again, the rubella season is usually a short one, and, further, many of those exposed would have had the disease already, often without being aware of it, owing to errors in diagnosis. All these factors would diminish the potency of these patients to infect others even though they may have been quite able to do so.

In conclusion, I would add a few words on the diagnosis. Where the rash is seen within 12 hours, or where the post-auricular and occipital glands are much enlarged, there is seldom difficulty, but when these last are little if at all affected, when the spots on the face have coalesced or faded, and the rash on the body has become scarlatiniform, distinction may be impossible, and I have not found the circumoral triangle of such assistance as was claimed by some. In the first place, invasion of this area in cases of scarlet fever, at least in adults, is by no means rare, and in the second place, at the time when difficulty arises in a case of rubella, the rash may have quite gone from this region. The condition of the tongue and fauces and the thermometer help one very little, and I have seen Dr. E. O. Hopwood, with his almost unrivalled experience of rubella and scarlet fever together, quite unable to decide between them. On the other hand, the distinction between rubella and morbilli rarely presents any difficulty, for the presence of Koplik's spots in the latter and their absence in the former generally decide the matter immediately. The value of these spots in the diagnosis of morbilli can indeed hardly be overestimated. I need hardly say that they were carefully looked for in this case and never found.

TWO CASES OF "OBSCURE" RECTAL PAIN AND THEIR TREATMENT.

BY F. C. WALLIS, F.R.C.S. ENG.,
SURGEON TO CHARING CROSS AND ST. MARK'S HOSPITALS.

CASES of so-called obscure rectal pain or neuralgia of the rectum are not infrequent in young people. The pain certainly is neuralgic in character but to say that it is obscure is incorrect and misleading. Of the two cases which follow, the first is unusually interesting on account of the length of time it had existed as well as of the clear history of the symptoms, and of the various treatments adopted before the real cause of the trouble was discovered. The second is very much like the first but the symptoms were not so severe.

CASE 1.—A rather delicate-looking man, aged 30 years, consulted me in February, 1907. His history was as follows. For over ten years he had suffered from rectal pain which started in the summer of 1896 when he hurried home on a hot afternoon to change for tennis. He had a forced and hurried action of the bowels which started the pain and this became so bad that he had to give up in the middle of a game. From that day until the beginning of 1907 these pains were more or less severe and frequent. The following is the description by the patient of the pains. "The pains were divided into two sorts: the short and severe, and the long drawn-out and less severe. Both were exactly in the same place and seemed to have their centre a short way up in the rectum and on the left side. The first sort was only brought about by an action of the bowels; the second sort by action, flatulence, connexion, long journeys, or sitting for a long time in one position, and for no reason at all. It would often occur in the middle of the night, wake me up, and at such times was both long and severe. The first sort would start directly after an action (after every action there was a period of anxiety as to whether there was to be an attack or not), and feel as if a pair of glove stretchers were being gradually extended inside the rectum; in a minute or so a climax of intense cutting pain would be reached which lasted a few seconds and gradually faded away, the whole thing lasting only two or three minutes. Sometimes this would develop into the long sort but not often. The other sort would start at any time—in my office, during a dinner party, when out for a walk, and would last sometimes for hours. This pain would spread after a time to the stomach and testicles on the left side which would get very sore and tender; I would feel ill and sick, sweat profusely, and on one or more occasions have actually fainted."

It is hardly necessary to say that this patient had taken all sorts of drugs and had been treated by all sorts of people without any benefit. One surgeon had operated on him for hæmorrhoids and later, in 1902, another surgeon removed his

coccyx! He then went for a voyage round the world, but in spite of all these and various other treatments the pains continued. When the patient came to see me in February, 1907, I suggested that he should be examined under an anæsthetic and if we found what we expected that permission should be given to do what was thought necessary. I explained what it was one expected to find—viz., one or more submucous tracks leading up the bowel from the ano-rectal junction. (See illustration.)

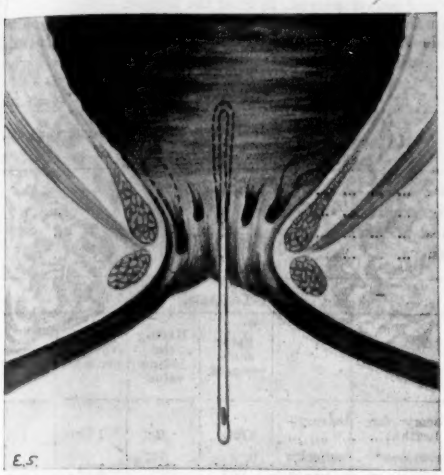


Diagram showing submucous tracks leading up from Morgagni's crypts—a common cause of severe rectal pain. (From "Surgery of the Rectum.")

On Feb. 29th the patient was anæsthetised and three submucous pockets were found, one of which was an unusually long one and extended up for one and a half inches. The whole ring of mucous membrane was removed and the upper cut edge was brought down and sewn to the anal skin. The patient had been previously warned that he must not be disappointed if there was a temporary return of the attacks, as after such a long period of suffering it was hardly to be expected that all symptoms would at once disappear, and this was exactly what happened. For a week or ten days after the operation whenever there was any flatulence or if the bowels were not thoroughly emptied there would be a spasm of pain. Fortunately a good nurse was looking after him and as soon as it was discovered what caused the pain to commence, precautions were taken by means of enemas that it should not happen, with the result that the pains ceased to occur and very soon disappeared altogether. I have seen this patient several times since his recovery and heard from him lately and he tells me that his whole life has been altered. He not only is free of his pains but his general health has improved and instead of being an invalid he is now a robust man, looking at life from a very different standpoint.

CASE 2.—This patient was also a delicate-looking young man sent to me by Dr. J. Mitchell Bruce and Dr. C. G. Battiscombe; his age was 21 years. For nearly 11 years he had been subject to severe rectal pains which would come on once or twice a month and last for several hours. When I saw him he had also some symptoms of mucous proctitis. When examined with the sigmoidoscope the mucous membrane was inflamed for some four inches and a careful examination showed two or three submucous pockets in the usual situation—i.e., leading up from the ano-rectal junction. The same operation was performed on this patient as on the last, with the result that he lost all symptoms and also the inflammation of the bowel disappeared. This patient was operated on in June, 1907, and the result has been in miniature the same as in the first case and instead of being a somewhat delicate young man he is now robust and strong, so much so that his firm has sent him out to a branch of the business in a most rigorous climate.

These two cases are good examples of a fairly common rectal trouble in young people, of which I have had much experience both in hospital and in private work. The particular interest which such cases have for me is that I have for years expressed the opinion and acted on my experience that such lesions as were found in both these men are not only accountable for the symptoms in these cases but also that they are the original lesions from which a large number of rectal complaints arise. This statement which I have demonstrated scores of times to be a fact has been challenged and denied by others interested in this particular branch of surgery.

There does not seem to be any useful purpose served by repeating what has already been published more than once, but the mere statement that this or that writer does not agree with my teaching and that in one or two instances I have not succeeded in my treatment is worthless one way or the other for proof or disproof, and is of no more value, for instance, than the attempt to discredit a method of operation of which the critic has had no personal experience. The theory, principle, call it what one will, which I have followed and taught for years is based upon facts and observations carried out not only by myself but by a number of capable and interested men, many of whom have seen and helped me at my work. Also I have received letters from surgeons and medical men from various parts of the world expressing their agreement with my views after making their own investigations.

Harley-street, W.

A PRELIMINARY NOTE ON THE EXAMINATION OF THE FAT IN THE LIVER IN HEALTH AND DISEASE.[1]

BY E. L. KENNAWAY, M.B., B.CH. OXON.,
AND
J. B. LEATHES, M.B., B.CH. OXON., F.R.C.S. ENG.
(*From the Lister Institute.*)

FOR many reasons special interest attaches to the combinations of fatty acids found in the liver. As a general rule the amount of fatty acids present in this organ is found to be comparable with that found in the heart or kidneys, and it is often less. But under exceptional circumstances in animals that are apparently normal, and not only in those that are diseased, the amount is excessive and then may be very much greater than the largest amounts ever found in the heart or kidney. In pathological conditions in man 60 and 70 per cent. of the dry solid matter of the liver may be fat, and Rosenfeld has found such amounts too in dogs that have been treated with phlorizin in starvation. There is no other organ in the body in which anything like such large amounts of fat ever occur. Moreover, as was shown by Hartley and Mavrogordato,[2] when these large quantities of fat occur in the liver the fatty acids are not those which normally characterise the fats and lipoids of the liver and other viscera, highly unsaturated acids with an iodine value of about 130, but consist largely of the saturated acids and oleic acid, and therefore absorb in extreme cases hardly more iodine than the acids that can be obtained from the fat of adipose tissue. This and other facts suggest, as has been pointed out before, that the liver stands in a different relation to the fats of the body from all other organs, and that fat which is put into circulation from the connective tissues undergoes some preliminary treatment in this organ before it is distributed to the other viscera in which it is finally oxidised completely.[3] This preliminary treatment would seem to consist in part of changes in the fatty acids whereby they are converted into those less saturated acids which are characteristic of the fat in the working organs, but which are generally absent from fat stored in adipose tissue. Since it has been repeatedly found that lecithin and other phosphatide lipoids from various sources yield on saponification fatty acids with a high iodine value, it is possible that this change in the character of the fatty acids

[1] Delivered before the Pathological Section of the Royal Society of Medicine on Dec. 8th, 1908.
[2] P. Hartley and A. Mavrogordato: Journal of Pathology and Bacteriology, vol. xii., 1908, p. 371.
[3] Leathes: Problems in Animal Metabolism, p. 118, 1906.

occurs only after the acids have been built up into these more complex combinations. It is known that phosphatide fats are present in the liver in considerable amounts; they constitute frequently a half, or perhaps more than a half, of the fat that the organ contains. And it may therefore be a special function of the liver to build up out of the connective tissue fat which reaches it, in the first instance lecithin and the related lipoid substances, for the use not only of its own cells but it may be for those in other organs as well, and the desaturation of the acids may occur only after they have entered the lecithin molecule and have come within the sphere of influence of the phosphoric acid and other groups which the lipoids contain, but which ordinary fats do not. One of the first points which suggest themselves for investigation, therefore, is a comparison of the nature of the fatty acids that occur in the simple glycerides present in a normal liver, with that of the acids occurring in combination with phosphorus and nitrogen. The present communication contains the results of some preliminary experiments on these lines, which form part of a study of the functions of the liver in relation to the metabolism of fat in health and disease.

In the first place it was necessary to effect some separation of the different combinations of fatty acids present in the liver. For this purpose the livers were minced and treated with alcohol; the alcohol was strained off after 24 hours and the solid matter pressed in a screw press. This process having been repeated several times the combined alcoholic extracts were evaporated *in vacuo* at a temperature not above 50° C. while a slow stream of carbonic acid passed through the fluid. In some cases the extraction with alcohol was followed by treatment with ether, which was then evaporated in the same way. The oily residue left after complete removal of the alcohol or ether was taken up in dry ether and the solution filtered. By the addition of two or three volumes of acetone the first separation is carried out; the acetone precipitating the lecithin and other phosphatides. The acetone solution evaporated in the same way as the original extracts leaves a residue consisting for the most part of simple glycerides with some cholesterin and a little unprecipitated phosphatide. This residue treated with dry acetone dissolves for the most part and the filtered solution evaporated to dryness leaves a residue soluble in petroleum ether, in which solvent it is best kept for examination. The acetone precipitate dissolved in ether and filtered should be re-precipitated with acetone repeatedly till everything soluble in acetone is removed. The final ether solution is then treated with two or three volumes of absolute alcohol, when a precipitate is obtained in which jecorin will be present, while lecithin remains in solution. The alcoholic solution evaporated down leaves a residue which is taken up in absolute alcohol and may be kept dissolved in that solvent or else in petroleum ether. The alcohol precipitate re-precipitated from ether by means of alcohol and washed with alcohol can if protected from moisture be preserved as a dry powder.

In this way the substances soluble in ether are divided into three fractions: (1) a fraction composed mainly of simple glycerides with some cholesterin, soluble in acetone; (2) a fraction soluble in alcohol which may be referred to as the lecithin fraction; and (3) a fraction insoluble in alcohol, the jecorin fraction.

The three fractions obtained in this way from the liver of pigs (two series), from a dog, and from a goat have been examined as follows: a weighed amount, about one gramme, of each of the fractions, was treated with potash and alcohol on the water bath for one to two hours. The soap solution obtained was washed with hot water into a Liebermann flask, made acid with sulphuric acid and shaken with a known volume of petroleum ether; and after the separation of the two fluids had taken place a fraction of the petroleum ether solution removed, evaporated to dryness, at first in a stream of carbonic acid and then *in vacuo* over the water bath. The weight of the residue gives the percentage of fatty acid, contaminated it may be with some cholesterin, contained in the sample. The weighed fatty acids serve then for a determination of the iodine value.

The acid aqueous fluid left in the Liebermann flask after removal of the petroleum ether can be used for determination of nitrogen and phosphorus, only in that case any precipitate that there may be, insoluble both in aqueous acid and in petroleum, must be oxidised too, since it contains both nitrogen and phosphorus. During the saponification small quantities of nitrogen escape as ammonia. This was caught in titrated sulphuric acid, the heating with alkali being conducted in a stream of hydrogen. This procedure, though complicated, presents certain advantages over the more direct combustion of separate portions of the original fatty materials in Kjeldahl flasks which, owing to the large amounts of fatty acids contained in the material analysed, requires care and long heating. In some cases the latter method was employed, in most the former.

In Table I. are given, for comparison with our results in Table II.: (1) The percentage of fatty acids and the iodine

TABLE I.

Simple Glycerides from Adipose Tissue.

In the	Contain fatty acids per cent.	Having the iodine value
Dog	about 95	about 60
Pig	,, ,,	,, 65
Goat	,, ,,	,, 40
Man	,, ,,	,, 65

Lecithins.

—	Fatty acids per cent.	Having the iodine value	Nitrogen per cent.	Phosphorus per cent.
Theory for distearyl-lecithin	70·4	0	1·73	3·84
Erlandsen* (bullock's heart)	70·5	110	1·79	3·95
Baskoff† (horse's liver)				
(1)	—	—	2·7	3·5
(2)	—	—	1·95	4·0
(3)	—	—	3·9	3·4

Jecorin (Horse's Liver).

—	Fatty acids per cent.	Nitrogen per cent.	Phosphorus per cent.
Drechsel	—	2·86	3·2-3·7
Baskoff†	40·75 37·85	2·52-3·1	2·8-3·0

* Erlandsen: Zeitschrift für Physiologische Chemie, vol. li., 1907, p. 71.

† Baskoff: Ibid., vol. lvii., 1908, p. 396. The different preparations of lecithin analysed by Baskoff were obtained (1) from the alcoholic extract of the liver; (2) from the ethereal extract; and (3) from an alcoholic extract obtained after extraction with ether.

value of these acids obtained from the adipose tissue fat of the species of animals to which the data in Table II. apply; (2) figures relating to the composition of lecithin of the theoretical formula containing two stearyl radicles, to that of a lecithin obtained by Erlandsen from the bullock's heart muscle, and to that of three preparations obtained by Baskoff from the liver of the horse; and (3) similar figures for the preparations of jecorin analysed by Drechsel and by Baskoff.

The figures given in Table II., the results of our work on the lines described above, show, as we expected, that we were seldom if ever dealing with completely isolated chemically pure substances, but they show that a separation has been effected which is sufficient for the solution of the question propounded in the early part of this communication. The preparations soluble in acetone, referred to in the first group of columns of the table, were, to judge from the percentage of fatty acids which they contained, much nearer to simple glycerides than to lecithin or jecorin. But since the extracts of the liver may have contained free fatty acids, and certainly would contain some cholesterin, and the presence of these in any considerable amount would tend to raise the figure given in this column for the percentage of fatty acids obtained on saponification by the methods used, a truer indication of the degree to which the simple glycerides of fatty acids have

TABLE II.—*Substances Extracted from the Liver by Alcohol. Soluble in Ether.*

	Soluble in acetone.				Insoluble in acetone.							
	Simple glycerides (+ cholesterin).				Soluble in alcohol. Lecithin fraction.				Insoluble in absolute alcohol. Jecorin fraction.			
	Fatty acids per cent.	Iodine value.	Nitrogen per cent.	Phosphorus per cent.	Fatty acids per cent.	Iodine value.	Nitrogen per cent.	Phosphorus per cent.	Fatty acids per cent.	Iodine value per cent.	Nitrogen per cent.	Phosphorus per cent.
Dog.	84·8 ± 0·2	97·0 ±0·1	0·69 ± 0·02	0·53 ± 0·025	57·2	105·5	2·02 2·03	3·35	35·4	103	2·54 ±0·00	2·90 ±0·12
Pig. 1.	88·4 88·6	116·1 120·1	0·31 ± 0·01	0·61 ± 0 01	(2) 62·2 ± 1·0	125·7 ± 0·3	2·06 ± 0·00	3·25 ± 0·08	(4 and 5) 55·5			
					(3)		1·92	3·08 ± 0·09	57·7	150·2	2·07 ±0·05	3·15
	90·1 92·7	114·9 106·0	0·35 ± 0·01		(4 and 5) 63·8	130·0 ± 2·0	[2·52]	3·19 ± 0·04	(6 and 7) 56·0			
					Mixed and reprecipitated 3 times.				53·6 53·8	145·2 148·3	1·72 ±0·02	3·32 0·08
					62·3	128·7 ± 1·0	2·33 ± 0·02	3·76 0·14	Mixed and reprecipitated twice.			
									54·3 54·4	122·9 123·1	2·09 ±0·00	3·29 ±0·12
2.	96·2 95·0	75·8 77·6	0·36 ±0·00	0·23 ±0·01	57·3 56·5	106·1 108·6	2·49 2·41	3·04 3·10	55·5	130 ±2·8		
Goat.	94·2 92·4	87·5 90·0	0·37 ±0·02	0·14 ±0·01					19·46 19·38	104 103·6	3·81 ±0·02	3·00 ±0·00
Man.												
1.	87·5	123·4			57·1 58·8	116·8 117·0						
2.	88·1	110·5			60·4	96·1						
3.	(a) 89·4	101·9			57·0	115·1			54·2	[110]		
	(e) 97·1	69·6										
4.	96·2 95·0	89·9 89·9			58·3	71·6			48·8	88·5		

Of the human livers No. 1 was from a case of diabetes mellitus, No. 2 from a case of carcinoma of the breast; neither of these was "fatty" and the latter was free from carcinomatous deposits. No. 3 was from a case of hæmorrhagic pancreatitis; it contained 8·54 per cent. of fatty acids, with the mean iodine value 85·7. It was extracted four times with alcohol; this extract (*a*) contained 18·8 per cent. of fatty acids in forms soluble in acetone and 6·6 in forms that were insoluble in acetone, of which 5·3 per cent. were in forms soluble in alcohol and 1·3 insoluble. This liver was then extracted twice with ether and this extract (*e*) was almost entirely soluble in acetone and contained 33·5 per cent. of fatty acids. No. 4 was from a case of mitral disease and was also fatty, containing 8·1 per cent. of fatty acids with the iodine value 87·9.

been separated from complex lipoids in these preparations is given by the nitrogen and phosphorus content. This shows that they cannot have contained, at any rate, more than from 10 to 20 per cent. of lecithin or jecorin. And therefore, the iodine values of the preparations in the first column show clearly that the highly unsaturated acids in the liver are not confined to the phosphatides. For instance, if the iodine value of 120 obtained in the preparation from the pig's liver No. 1 were due to a mixture consisting of 20 per cent. of fatty acids from lipoids and 80 per cent. of fatty acids such as occur in the adipose tissue of pigs, with the iodine value 55, then the iodine value of the acids mixed with these latter would have to be 380, which is so much greater than that found for the fatty acids obtained from the other fractions, that it is certain that the simple glycerides occurring in the pig's liver, if they have come from the animal's adipose tissue, must have been changed in character and been converted into acids which are less saturated. The highly unsaturated acids, then, are not confined in the liver to the compounds containing phosphorus. These latter compounds, however, to judge from the figures in the table, contain acids which, generally speaking, are more unsaturated than those in the form of simple glycerides. This would be the result to expect if fatty acids when they arrive in the liver are of the type that occurs in the adipose tissue, and generally speaking in the food, and then in the liver they undergo a process of desaturation; so that the preparations dealt with in the first column represent fat in process of being desaturated, partly still unchanged, partly already changed, whereas the fatty acids in the second and third columns are in a later stage more completely desaturated and further combined up with phosphoric acid and other groups into the lipoid molecules of "lecithin" and "jecorin."

The iodine values are, it must be noted, in all cases minimal values. That this is so is shown, for instance, by the following facts.

1. As a general rule as soon as a liver was received for examination, a portion of the fresh-pulped tissue was heated with potash and alcohol in order to estimate the total amount of fatty acids present in all combinations, and the iodine value of the mixed total acids so obtained was determined. Among the human livers, for instance, No. 1 contained 3·45 per cent. of its weight of higher fatty acids with the iodine value 135·6; No. 2 contained 3·2 per cent. with the iodine value 134·5. The mixed acids from all sources obtained in this way had been exposed to a much less prolonged treatment than those obtained from the different preparations of the several kinds of fat, glyceride, lecithin, or jecorin, after they had been separated from one another. In the case of the former the iodine value was determined within 48 hours of removal from the body; before this could be done in the case of the latter three weeks or more had elapsed. Accordingly, the former—i.e., the mixed acids—have a higher iodine value not only than those from the fat soluble in acetone but also than those obtained from the lecithin fraction. This was done, too, in the case of the liver of pig No. 2. The preliminary

examination gave in this case 3·15 per cent. of higher fatty acids with the iodine value of 123·1, which is higher than that found subsequently for the acids from the isolated lecithin fraction, and less only than that for the jecorin fraction, which accounted for not more than, at the outside, 5 per cent. of the fatty acids present in the liver.

2. But even the iodine value obtained for acids prepared by saponifying fresh liver tissue is lower than the real value. For the heating with potash and alcohol causes some changes in the acids. Thus a preparation of "lecithin" was treated with Wijs's iodine solution in the usual way for the determination of the iodine value and absorbed 83·1 per cent. At the same time another portion of the same preparation was saponified and the percentage of fatty acids contained in it determined: 60·5 per cent. were found and their iodine value was now 120·7. If the unsaponified lecithin had the iodine value 83·1, and contained 60·5 per cent. of fatty acids, these acids must have had the iodine value 137·3. This value had fallen to 120·7 during saponification.

The iodine values given in the table are therefore minimal values, and the argument as to the desaturation of the fatty acids present in the form of glycerides is stronger even than the figures show.

Other points brought out in the table that seem to call for comment even at this stage of the inquiry are the following.

The lecithin fraction gives figures which do not agree with those for lecithin of the usually supposed constitution. The percentage of fatty acids was always less than required by the accepted formula, as was also the phosphorus; the nitrogen, on the other hand, was higher. Four preparations from the pigs' liver No. 1 were analysed: those from the second alcoholic extract, from the third, from the fourth and fifth mixed, and fourthly from a preparation obtained by mixing the lecithin fractions of all eight extractions and re-precipitating this mixture three times with acetone. The percentage of fatty acids in these preparations, omitting the analysis of that from the third extraction which was technically faulty, was remarkably constant, ranging from 62·2 to 63·8. The ordinary formula for lecithin requires about from 68 to 71 per cent., according to whether palmitic, stearic, or oleic acid is supposed to be present. The figures obtained from the liver of pig No. 2 were lower still, so, too, were those from the dog's liver. Baskoff from the liver of the horse obtained lecithin containing 62·5 and 63·6 per cent. of fatty acids. The percentage of nitrogen found by him was 2·7, higher still than ours, and that of phosphorus, 3·5 per cent., though higher than our figures, is lower than that required by the accepted formula—3·8.

The constancy in a number of preparations of these variations from the accepted figures for lecithin may be interpreted as meaning that the lecithin in the liver has a different composition, or, as is perhaps more likely, that the mode of separation adopted fails to separate it from some other phosphatide as yet unknown. The figures for the lecithin from the liver of pig No. 2, showing a still greater departure from the true lecithin figures, lower percentage of fatty acids, lower phosphorus, and higher nitrogen content, would in that case mean that this unknown phosphatide was relatively more abundant in this liver.

The jecorin fraction gives the tests for jecorin, reduces cupric oxide, gives a red colour with silver and ammonia, and after hydrolysis an osazone melting at 203° C. The fatty acids present in the preparations from the pigs' livers were fairly constant in amount: ten estimations were carried out on different samples from pig No. 1, two of them being by a different method; three were technically faulty; the seven others ranged between 57·7 and 53·6 per cent. Those carried out on the final preparations obtained by mixing all the earlier ones and reprecipitating once with acetone and once with alcohol gave 54·3 and 54·4 per cent. The preparation from pig No. 2 gave the figure 55·0.

The figures given by Baskoff for preparations of jecorin from the liver of the horse are 40·75 (p. 410) and 37·85 per cent. But since our preparations of jecorin fractions from the dog and the goat give again very different figures in each case, it seems reasonable to expect to find that substances of quite different constitution appear in this fraction according to the species of animal from which it is obtained.

The iodine value of the fatty acids, as pointed out before, is necessarily an understatement of the degree to which they are unsaturated. The preparations from the fourth and fifth and the sixth and seventh extracts of the livers from which the figures in the table marked pig No. 1 were obtained, after being mixed and twice reprecipitated, yielded acids with an iodine value of 123 which at an earlier stage had absorbed from 140 to 150 per cent. of iodine. And even at this earlier stage the preparations had undergone much manipulation of the same kind as that which resulted in this change. But the high figures given by these preparations seem to show clearly that the most highly unsaturated acids are found in this fraction.

The nitrogen and phosphorus estimations carried out on different preparations from the pigs' livers agree fairly among themselves. The nitrogen figures are lower than those given by Drechsel and by Baskoff for the jecorin from the horse's liver. The phosphorus figures fall within the limits of variation in Drechsel's analyses. The single preparations from the dog and the goat require confirmation but seem to show differences from the jecorin of the pig or horse like the percentage of fatty acids.

A CASE OF EXCISION OF THE SCAPULA.

BY H. B. MYLVAGANAM, F.R.C.S. ENG.,
SURGEON TO VICTORIA HOSPITAL, BANGALORE.

THE question of how much of the scapula should be removed for new growths involving it has been answered very differently by various surgeons with large operative experience. There cannot be two opinions as to the amount to be removed in all cases of rapidly growing malignant tumours involving a larger portion of this bone. I think the consensus of opinion is in favour of excision of the whole bone, and that, too, as early as possible, if the patient's life is to be saved. Considerations of good functional results or of æsthetics do not concern the surgeon in these cases. His chief aim is to save the patient from local recurrence and general dissemination of the growth. But the position of the surgeon assumes a different aspect when he has to deal with innocent growths of the scapula. The question he has to answer here is how much of the bone can be safely left without any detriment to the patient to insure good functional result and to minimise the amount of deformity that is likely to take place. With this end in view some surgeons advocate the preservation of the glenoid cavity and the coracoid process in one piece and of the acromion process, as the retention of these portions of the bone with their muscular and ligamentous attachments, it is said, insures better functional results and diminishes the resulting deformity to a much greater extent than the removal of the whole scapula.

On theoretical grounds the above statement appears plausible enough, but on close scrutiny the material advantage to the patient is not much more than what excision of the scapula with retention only of the acromion process can offer. In an article published recently Mr. R. P. Rowlands[1] advocates partial excision of the scapula in all non-malignant tumours because of the better functional results obtained in his case. In September, 1906, I removed the whole of the scapula with the exception of the acromion process for a case of sarcoma, and the functional results were as good as those of his case with the exception only of abduction, which was only possible in my case to an angle of 90 degrees, but in Mr. Rowlands's case the patient was able to abduct the limb to a right angle. But the other movements were as good as in his case. The following case illustrates the points raised by me.

A Kochin coolie, aged 22 years, was admitted into the General Hospital, Colombo, under my care on August 30th, 1906, for a tumour involving the left scapula. About three months prior to his admission the patient noticed a swelling on his left shoulder-blade, which was at first flat but had since rapidly grown to the present size, causing much inconvenience and preventing him doing his work with ease and comfort. He also stated that this tumour appeared some time after he had carried a heavy beam on his left shoulder. There was no history of syphilis.

On admission the patient was not a robust subject by any means. The life of a coolie of his class is in this country not

[1] Brit. Med. Jour., March 28th, 1908.

a bed of roses. He has to work the whole day exposed to the scorching heat of an Oriental sun for a paltry wage of a few annas, and his chief diet consists of boiled rice and pepper water and occasionally, perhaps once a month, he may treat himself to some mutton curry. Therefore it is rather difficult to say whether his ill-nourished condition was due to his hard work and privation or to the malignant tumour he was suffering from. His left scapula was involved in a growth oval in shape and of about the size of a fœtal head. Its upper limit extended as far as the scapular spine. The tumour therefore occupied the infra-spinous fossa. It had also extended into the axillary space where some glands were distinctly enlarged. It measured about 10¼ inches vertically and 11 inches transversely. The skin was freely moveable over the tumour. The consistency of the tumour was not uniform. It was firm in some places and elastic in other parts. It presented no bosses of any sort but was smooth all over without any pain or tenderness on pressure. The tumour was firmly adherent to the bone and moved with it. There were no infiltration of the surrounding parts, no signs of inflammation, no fluctuation, and no egg-shell crackling. The veins over the inner aspect of the tumour were dilated.

Diagnosis.—The rapidity of the growth, the presence of areas which were hard in some places and elastic in other parts, the involvement of the axillary glands, the presence of dilated veins, and the absence of egg-shell crackling tended to show that it was a malignant form of sarcoma arising from the periosteum of the scapula. Microscopic examination proved that it was of the large round-celled variety.

Operation.—On Sept. 4th, 1906, the patient was anæsthetised with $CHCl_3$ and was placed in a semi-prone position, the tumour being upwards. His left chest was supported by sand-bags to prevent him rolling over and interfering with the anæsthetist. A T-shaped incision was made, the horizontal line running along the upper border of the scapula and the vertical one extending downwards from the middle of the first incision to an inch below the angle of the scapula. The flaps of skin with the subcutaneous tissues were fully reflected. The trapezius and the deltoid were severed from the spinous process and the divided ends were reflected away from the underlying structures, but their acromial attachments were not disturbed. The suprascapular vessels were next divided between the ligatures and the nerve was severed. The muscles inserted into the greater tuberosity of the humerus—viz., the supra- and infra-spinati and teres minor—were divided close to their insertion. The teres major was defined and divided a little above its origin. The subscapular vessels were divided next between two ligatures. Next, the muscles inserted into the vertebral border of the scapula were severed from above downwards—viz., the levator anguli and the rhomboid muscles. The posterior scapular vessels were then divided. The scapula was then forcibly pulled away from the side of the chest and the serratus magnus was divided. The acromion process with its muscular attachments carefully preserved was sawn through its junction with the spine. The omohyoid was next severed. The coracoid process was now identified, and the coraco-brachialis, the short head of the biceps, and the pectoralis minor were cut through. The knife was kept very close to the bone for the fear of wounding the axillary vessels. The scapula was now rotated outwards and the subscapularis was divided close to its insertion. The capsule of the shoulder-joint was next cut through close to its glenoidal attachment and the scapula was removed by severing the origin of the long heads of the biceps and triceps. No special precautions were found necessary to keep the axillary vessels out of the way. Although the main vessels were found and tied as the operation proceeded, yet there was much venous hæmorrhage from the surface of the tumour which could not have been stopped. Consequently the patient was very much collapsed at the end of the operation, necessitating saline transfusion and injections of strychnine and adrenalin subcutaneously. The deltoid and the trapezius were united together and the skin incision was sutured and the wound was drained by means of a rubber tube at the lower end of the vertical incision. The tube was retained for three weeks as there was some discharge of pus. The superficial wound healed by first intention, except the inner half of the horizontal incision which became infected.

There was a good deal of shock after the operation. A saline enema was given in six-ounce doses every four hours and injections of strychnine and adrenalin were given at regular intervals. The shock lasted fully 24 hours after which improvement took place. On the fourth day after the operation the patient had an attack of acute dysentery, passing several motions with blood and mucus daily, attended with much pain and tenesmus. At one time no hope was entertained for his recovery. This unfortunate and unforeseen complication had prolonged his convalescence and he was discharged on Oct. 24th—i.e., on the fiftieth day after the operation. On account of this incident active and passive movements were not commenced till the twenty-ninth day after the operation.

Condition of the patient on discharge.—He had completely regained his previous health. He was able to flex his shoulder-joint freely, so much so that he easily touched the back of his head with his fingers, but he was not able to hold the arm vertically up. Extension and adduction were performed easily and to the fullest extent but abduction was very much limited and painful. Internal and external rotation was permissible to a moderate extent. Circumduction was not possible. The utility of the joint had not been impaired. He easily carried a large jug of water to a distance of 30 feet. So far as deformity was concerned there was only a slight flattening of the shoulder-joint to be noticed. An unsuspecting eye would not have specially noticed it. And I believe that the absence of any marked deformity in front was mainly due to the retention of the acromion process of the scapula which is more or less retained in its normal position by the opposing influence of the trapezius and the deltoid muscles which were left intact. The acromial end of the clavicle did not project upwards at all, but the deformity was quite visible behind. The biceps and the triceps muscles were felt to contract distinctly during flexion and extension respectively and there was no diminution in their size. They must have evidently contracted fresh adhesions. Free abduction was not possible on account of the head of the humerus jamming against the thoracic wall and the pain was probably due to its pressure on the brachial plexus or its branches.

The patient and the specimen removed were shown on Sept. 1st, 1906, at a meeting of the Ceylon Branch of the British Medical Association and the proceedings were published in the journal for the last half of 1906.

Incision.—The usual T-shaped incision is to be preferred to any other and I agree with Mr. Rowlands that it gives easy access to the parts to be removed, that the flaps are small and well nourished, that it allows efficient drainage through the lower end of the wound, and that the resulting deformity is slight. Hæmorrhage from the large vessels can certainly be more effectively controlled by this incision but it is not a factor that need be taken seriously because a pair of Spencer Wells forceps can be depended upon to stop hæmorrhage from the vessels. But the hæmorrhage in these cases is not so much from the large vessels as from the minute veins from the surface of the tumour which cannot be efficiently stopped. The shock in these cases is partly due to the severity of the operation and partly to excessive hæmorrhage. The internal administration of calcium chloride for about three days prior to the operation and an enema on the morning of the operation might be tried with advantage in such cases to reduce the amount of bleeding. Prolonged exposure should be avoided as much as possible by rapid operation.

Comparative advantages of complete and partial excision.—In my opinion in all malignant tumours of the scapula total excision should be practised with the exception of the tip of the acromion process which may be retained with advantage if the tumour has not extended too high up. Anything beyond this is likely to court disaster to the patient as the chances of recurrence are very great. With regard to the function of the joint after these operations, the one advantage in favour of retention of the glenoid fossa and the coracoid process according to Mr. Rowlands is that the arm can be abducted to a right angle from the body but nothing more. But in total excision the arm can also be abducted to 90°.

With regard to flexion, extension, internal and external rotation, both methods give the same amount of movement. Now, the question may be asked whether the retention of the glenoid fossa and the coracoid process, in view of the comparatively small amount of benefit to the patient, is justifiable in malignant tumours. I think not. Even in non-malignant tumours the partial excision as advocated by Mr. Rowlands has a few disadvantages. The retention of a

small fragment of a bone minus its main support, both bony and muscular, cannot be said to afford the patient any great advantage. There is some likelihood of this fragment undergoing necrosis from diminished blood-supply. If thorough asepsis is maintained and if the wound heals by first intention, and if active and passive movements are practised after the first week, complete excision will certainly compare very favourably with partial excision. In my case active and passive movements were not commenced till the twenty-ninth day after the operation on account of the critical condition of the patient. Even then the amount of movement obtained was remarkable. I dare say if movements had been practised early the results would have been much better. Regarding recurrence the weight of evidence, though not much, points to local recurrence, even in total excision. If such be the results after total excision then the chances of local recurrence after partial excision must be much greater. If there be any signs of internal dissemination before the operation then I do not see any utility in subjecting the patient unnecessarily to such a severe operation. The detachment of the origins of the biceps and triceps from the glenoid fossa need not necessarily weaken the movements of the elbow-joint because fresh adhesions in suitable position are sure to form as in my case.

On the other hand, the retention of the glenoid fossa and the coracoid process must be, to my mind, a disadvantage, because the fragment is not likely to supply that firm support necessary for the easy movement of the head of the humerus as in the normal joint, but is likely to move bodily with the head of the humerus acting as a new head, or a traumatic or infective synovitis may take place in the joint and lead to adhesions between the articular surfaces. In such an eventuality the rough edge of the sawn-off fragment cannot be said to offer the best articulating surface for the movement of the humerus. On the contrary, the movements will be limited and attended with a certain amount of pain.

With regard to non-malignant growths of the scapula the line of treatment would depend on the size and situation of the growth. Where it is small and limited one will be content with removing just the involved portion. If, for instance, it occupied the infraspinous fossa, one can safely leave the upper third of the scapula with its spine and muscular attachments; but if it involves the upper half then the whole scapula will have to be removed.

Conclusions.—1. The T-shaped incision is the best suited for excision of the scapula.

2. In all malignant tumours of the scapula, whether in its early or late stage, total excision is to be preferred, as the chances of local recurrence after partial excision are great.

3. The retention of the glenoid fossa and the coracoid process, instead of being an advantage, may render movements of the head of the humerus painful on account of the rough surface of the remaining piece of the scapula pressing on the surrounding parts or may limit its movements by its irregular surface. A traumatic or infective synovitis may take place or the fragments may undergo necrosis on account of the diminished blood-supply rendered unavoidable by the necessary dissection of the surrounding parts. This fragment cannot take the place of the normal scapula even to a small extent, as it is no longer connected with the chief muscles which give stability to the normal scapula during the wide range of movements of the humerus—viz., the serratus magnus, trapezius, levator anguli scapulæ, rhomboidei, omo-hyoid, so that it is likely to move with the head of the humerus. Moreover, the long head of the biceps and the triceps and the coraco-brachialis will tend to draw the fragment downwards and to keep it well fixed to the head of the humerus, so that during the movements of the joint there will be no movement between the head of the humerus and the glenoid cavity, but the whole piece will move as a whole.

4. The operation must be completed as quickly as possible otherwise there will be a lot of hæmorrhage from the surface of the tumour which cannot be effectively stopped even after ligaturing the main vessels.

5. In innocent growths our aim should be to preserve as much of the scapula as compatible with safety. Only that portion of the scapula to which the tumour is attached should be excised but the rest should be left intact. The larger the portion of the scapula left the greater is the movement of the joint.

6. Success of the operation largely depends on strict asepsis and the early adoption of systematic active and passive movements of the shoulder. A false joint is sure to form round the head of the humerus in course of time.

Bangalore.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ENTERIC FEVER, RUPTURE OF BOWEL (?), FOLLOWED BY CIRCUMSCRIBED AND SUBSEQUENTLY DIFFUSE PERITONITIS AND RECOVERY.

BY THOMAS LAFFAN, M.R.C.P. IREL., M.R.C.S. ENG.

A DELICATE-LOOKING woman, aged 30 years, was admitted to the Fever Hospital, Cashel, on Oct. 3rd, 1908, suffering from enteric fever. She came from a house where several of the family were laid up with enteric fever. She was positive that she was only two or three days sick before admission. Her temperature was only 101° F. when admitted and her pulse was over 100 and she vomited once or twice. She had all the other symptoms of enteric fever with the exception of the spots. She had diarrhœa, which only lasted a couple of days, after which the bowels were either confined or natural. After a week both the temperature and the pulse became normal and remained so. A circumscribed swelling was present in the abdomen exactly of the appearance of a seven months pregnancy. Some pain was certainly present, but neither pulse, nor temperature, nor any other symptoms, if we except pain in the left iliac fossa, indicated the real nature of the trouble. A careful examination of all the local parts failed to disclose the real state of things. Palpation, percussion, &c., were equally at sea and there was a total absence of any sign or symptom that would point to perforation when, pending an exploratory puncture and while the pulse and temperature were normal and the bowels acting naturally, the circumscribed swelling unexpectedly gave way and a diffuse collection of matter took its place. The abdomen was then opened and 76 ounces of purulent matter were let out. The abdomen was subsequently washed out on several occasions with antiseptic solution. During one of these irrigations the patient fainted and remained in that condition for some hours. From that time onwards she gradually improved and now she is quite well.

Some of the fluid which was withdrawn was subjected to careful examination. Nothing was mentioned either about typhoid fever or a possible bowel rupture to a London expert. He identified the typhoid fever bacillus. As regards the bowel rupture he reported that there was a considerable amount of finely emulsified fat present; he added that this latter suggested the presence of fæcal matter but that he was not able to prove this by the detection of any gross fæcal constituents. He went on to state that he found a rod-like organism which might be the bacillus coli. In a further communication he reported that after cultivation he found an organism having all the characters of the bacillus coli. It would thus appear to be probable that there must have been some leakage from the bowel. Some circumscribed abdominal inflammation was first thought to be responsible for the swelling. The extraordinary pulse and temperature maintained during and after the leakage occurred seem to me to make this brief record worthy of publication.

Cashel.

A CASE OF LEFT-SIDED INGUINAL HERNIA CONTAINING THE APPENDIX VERMIFORMIS.

BY A. D. GRIFFITH, M.B., B.S. LOND., M.R.C.S. ENG., L.R.C.P. LOND.,

SENIOR RESIDENT MEDICAL OFFICER, ROYAL FREE HOSPITAL, W.C.

THE patient, a married woman, aged 31 years, was admitted to the Royal Free Hospital on May 20th, 1908, under the care of Mr. E. W. Roughton, to whom I am indebted for permission to publish these notes. The patient first noticed a swelling in her left groin five years previously,

a month after a confinement, and it had gradually increased in size since that time. She had sometimes felt a sharp pain in the left groin on rising suddenly after lying down. She had never worn a truss. On examination there was found to be a left-sided inguinal hernia of about the size of a hen's egg. It was readily reducible and seemed to consist of bowel.

On May 23rd I performed an operation for the radical cure of the hernia. The external abdominal ring was exposed by a flap incision and the aponeurosis of the external oblique split throughout the length of the inguinal canal. A small hernia of the extra-peritoneal fat was removed and the sac of the hernia identified and cleared. The sac was then opened and was found to contain the vermiform appendix. The appendix was about four inches in length and was throughout nearly the whole of its length firmly adherent to the inner wall of the hernial sac. The adhesions were divided, bleeding points being clamped and ligatured. Some adhesions of the cæcum about the neck of the sac were similarly treated. Traction was then made on the appendix in order to draw the cæcum up to the wound. It was then seen that an ovary, which appeared normal, was adherent to the back of the cæcum. It was found impossible to draw the cæcum sufficiently far down to permit of the insertion of the sutures necessary for removal of the appendix. The peritoneum was therefore repaired over the appendix and cæcum and they were returned to the abdomen. The operation for the cure of the hernia was then completed. The patient made a good recovery and left the hospital on June 12th.

The interest of this case lies in the rarity of the condition. Hernia of the appendix is fairly often met with—Kelly and Hurdon[1] estimate the frequency at between 1 and 2 per cent. of all hernias—but it is extremely rare for the appendix to be found in a left-sided hernia. Eccles, in a paper on Hernia of the Vermiform Appendix,[2] has collected 29 cases, of which only one occurred on the left side. That was a case of a man, aged 58 years, with a left-sided inguinal hernia, apparently strangulated. It was found to contain a gangrenous appendix which was ligatured and cut off. Kelly[3] figures a left-sided inguinal hernia containing the appendix and cæcum. The condition was found, post mortem, in a man, aged 81 years, with greatly relaxed abdominal walls. Recently De Garmo[4] has published an account of 21 cases of hernia of the appendix collected from 1600 cases of hernia operated on by him. In no one of these cases was the hernia on the left side. In the case now reported I believe there was a mesentery to the ascending colon as a predisposing cause. I may mention that the patient was not the subject of spinal curvature, general enteroptosis, or transposition of viscera, all of which have been suggested as possible etiological factors.

Royal Free Hospital, W.C.

[1] The Vermiform Appendix and its Diseases.
[2] St. Bartholomew's Hospital Reports, vol. xxxii., 1896.
[3] Loc. cit., p. 788.
[4] Post-Graduate, August, 1908.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION

Bacteria of the Puerperal Uterus, with Especial Reference to the Presence of Hæmolytic Streptococci.—Extra-uterine Gestation.

A MEETING of this section was held on Dec. 10th, 1908, Dr. HERBERT R. SPENCER, the President, being in the chair.

Dr. ARNOLD W. W. LEA and Dr. E. J. SIDEBOTHAM communicated a paper on the Bacteria of the Puerperal Uterus, with Especial Reference to the Presence of Hæmolytic Streptococci. They pointed out that in recent years much stress had been laid upon the hæmolytic power of the streptococcus pyogenes as an index of its virulence. It had been conclusively shown that the streptococcus present in severe infection was markedly hæmolytic, and many observers believed that the discovery of an organism of this type in the lochial discharge indicated the presence of infection which was usually of a severe type. Dr. Lea and Dr. Sidebotham made observations on a series of 58 patients in whom the puerperium was normal. The results of these experiments appeared to show (1) that the uterine secretion after delivery contained organisms, in the great proportion of cases, after the second day; (2) these organisms closely resembled those found in puerperal infection; (3) streptococci were present in a considerable number of cases, and often showed marked hæmolysis; and (4) the discovery of hæmolytic streptococci in the lochial discharge was no certain indication of the existence of infection.—Dr. G. DRUMMOND ROBINSON considered that the section was hardly competent to discuss the paper, as so few of the members possessed sufficient bacteriological knowledge. He thought that the weak spot in the paper had been indicated by Dr. Lea and Dr. Sidebotham themselves. It was undisputed that the cervix always contained micro-organisms, and it appeared to him that it would always be impossible to obtain material from the cavity of the uterus without contaminating such material with micro-organisms from the cervix. With regard to this matter, his observations were quite in accord with those of Whitridge Williams and others.

Mr. ALBAN H. G. DORAN read notes of a case where a woman, aged 35 years, subject to irregular menstruation for three years, was seized on April 19th with acute hypogastric pain. A swelling developed in the left iliac fossa. When the patient was admitted into hospital on July 3rd the mass was found to be an oval, well-circumscribed cyst; there was no milk in the breasts and there had been no show of blood of any kind for several months. On July 10th Mr. Doran operated. He discovered a posterior tubo-ligamentary pregnancy, opened the sac, and extracted a live fœtus; the greater part of the placenta came away with it. The cavity of the cyst was firmly packed with gauze and a purse-string suture was passed round the cut edge of the cyst wall to check hæmorrhage but not drawn tightly as the large intestine ran along the back of the cyst. The cut edge of the cyst was sutured to the parietal peritoneum. There were two fresh attacks of hæmorrhage checked by pressure and 48 hours after the operation the packing was removed. There was much fœtid discharge for several weeks but the hæmorrhage never recurred. During the last week in November menstruation returned. Mr. Doran considered that, as there was always great risk of hæmorrhage after operations performed late in ectopic pregnancy, the method which he had adopted was good surgery.

Mr. HERBERT J. PATERSON communicated a case of Extra-Uterine Gestation in which operation was performed during the sixth month of pregnancy. This paper was published in THE LANCET of Dec. 26th, 1908, p. 1875.

The PRESIDENT thought that the cases referred to by Mr. Paterson were of much value, since cases of extra-uterine pregnancy with living children in the second half of pregnancy were rare. Of three such cases which he had seen only the last recovered. In the first he left the placenta behind, in accordance with the teaching of the time; in the second he removed the placenta and membranes and packed with gauze, but the patient died the same night from syncope. In the third he treated the case in the same way as the second, and recovery resulted. Mr. Paterson estimated the pregnancy in his case as "in the sixth month," the fœtus only measuring 6½ inches. The size usually given for an intra-uterine fœtus of five calendar months old was 10 inches and for one of six calendar months old 12 inches. He did not know of any tables giving the size of the ectopic pregnancy fœtus, but it was important that the age of the pregnancy should be correctly stated as the mortality was enormously increased in the second half of pregnancy.—Dr. AMAND J. M. ROUTH had no doubt that the vomiting was due to the irritation of the gauze packing. It came on as the anæsthesia passed off and persisted till the gauze was removed. He did not consider that vomiting coming on immediately after the operation should be treated by calomel, but rather by morphine, for so long as the gauze was firmly packed in the pelvis and the rectum thus mechanically obstructed purgatives could not efficiently relieve. Drainage must be continued till the wound closed if gauze packing had once been used.—Dr. H. MACNAUGHTON-JONES wished to call attention to the value of cyllin as a preventive in those cases of vomiting in which there were toxic influences present through bowel complications. He gave it as a

general rule in all cases in which such were to be apprehended in minim doses and in the palatinoid form. He should not like to give calomel in large and repeated doses when there was persistent vomiting as in Mr. Paterson's case.—Mr. ALBAN DORAN, in reply, observed that the vomiting caused by the packing of the cyst, which in his own case did not cease until the gauze was removed, was only what he expected. There was no difficulty in getting the bowels open in this instance directly the pressure of the packing was removed. The gauze packing checked hæmorrhage, always imminent in the circumstances, whilst there was relatively little peril from the vomiting and obstruction. He admitted, on the other hand, that the free discharge and suppuration made convalescence tedious.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Present Position of the Rat-flea Theory of Plague; Recent Observations in Calcutta.

A MEETING of this society was held on Dec. 18th, 1908, Sir PATRICK MANSON, the President, being in the chair.

Dr. W. C. HOSSACK read a paper on the Present Position of the Rat-flea Theory of Plague, with recent Observations in Calcutta. He said that to many of them the rat-flea theory of human plague, being due to the bites of plague-infected rat fleas, was an established fact of modern medicine; it was acquiring the status of a text-book dictum and it was certain that unless the other side of the question was put forward a stage would be reached where the matter would be practically beyond dispute and that stage he was anxious to anticipate. The rat-flea theory fitted in with all the known or assumed conditions of plague; plague was most rampant where the mus rattus was most prevalent, its season corresponded with the season of the maximum prevalence of rats as indicated by the breeding season; and finally plague was correlated with the maximum prevalence of rat fleas, which in turn was correlated with the habits of mus rattus as compared with the habits of mus decumanus. The former was a roof-haunting rat liable when dead to drop its fleas on man; the latter a sewer and burrowing rat which left its fleas on its demise in its burrows where they could not attack man. In 1906 began the issue of the reports of the Bombay advisory committee on plague. Their experiments and observations all pointed in one direction, the prepotency of the rat flea as the cause of human plague. So little doubt was there about the predominant part played by the mus rattus that the difference in the rat population of Bombay and Calcutta was brought forward as the explanation of the difference in the severity of attack. Bombay had a rat population in which, according to Liston, mus rattus predominated, and accordingly it suffered severely; Calcutta had a rat population in which mus decumanus predominated, and hence it was comparatively mildly attacked. Dr. Hossack started to verify the supposed fact that mus decumanus was the common rat of Calcutta. A year's work showed that the principal plague rat of Calcutta was one never dreamt of before—the Bengal rat, Nesokia bengalensis; mus decumanus, the brown rat, also played an important part and the rôle of mus rattus was almost negligible. Incidentally it was also found that rats bred freely all the year round and that the difference of habits between mus rattus and mus decumanus had been much exaggerated. In consequence of Dr. Hossack's Calcutta work there was a re-examination of rat conditions in Bombay, with the result that the presence of the Bengal rat was established there, but still more unexpected, the commonest rat and the one which suffered most from plague was found to be the brown rat. The advisory committee had tried to establish that plague was associated with certain temperature conditions which were favourable to the retention of the plague bacillus in the stomach of the flea and favourable to the development of septicæmia in the rat, &c., and that these conditions were correlated to the mean temperature found to prevail in the seasonal period of plague activity, but it had failed completely to establish a mean temperature for plague epidemics. Dr. Hossack emphasised the fact that flea conditions were quite different in Calcutta to those found in Bombay: pulex irritans was practically unknown; pulex cheopis was found only in connexion with cats and dogs; and though the rat flea occurred on rats in numbers comparable to those found in Bombay, neither it nor any other flea had been found in plague houses unless exceptionally and in insignificant numbers. The general observation of his had been confirmed by a series of definite negative observations carried out by means of guinea-pig flea traps. In investigating the question, Did the rat flea bite man? experiments were carried out by Dr. Hossack that might seem to be rather bold in that fleas were taken directly from wild rats and put on men who were most of them not inoculated, but it must be remembered that in addition to a number of weighty theoretical considerations which were gone into very fully in his Calcutta Plague Report for 1907 there were very reassuring practical observations. Thus special inquiries at the end of the plague season showed that those engaged in regularly collecting rats showed no special tendency to contract plague nor did the men engaged in handling the rats at the rat depôts. Verjbitski had found by experiment that even with very highly virulent plague no infection was likely to take place in a rat when the number of experimental flea-bites was less than five. Now, the rat was more susceptible than man, and leaving out of account the enormous difference in bulk man would probably require more bites—say, ten. If his (Dr. Hossack's) statement be accepted, that of even starved rat fleas, only one in six would bite, then there must be 60 starved fleas on a man to produce the necessary ten bites in order to infect him. At the very least it was clear that there must be numerous fleas on him. In the cases of acutely infected houses in Calcutta, if those cases of plague were due to flea bites then the houses should have been swarming with rat fleas, but no fleas were noticed in these houses. If Verjbitski's conclusions that even for the rat a minimum of five bites was necessary be accepted, then it followed, quite apart from Calcutta, that the rat flea could only play an occasional and unimportant part in human infection.

Sir H. H. R. CHARLES said that according to ancient and modern writers the association of the rat with plague was practically almost invariable; when there was an exception he would say that there must be something to explain it.

Dr. G. C. LOW stated that if the mucous membranes of plague-infected rats were injured buboes were found in the necks of the animals.

Mr. J. CANTLIE pointed out that in pneumonic plague infection occurred from man to man.

Dr. G. F. PETRIE gave a summary of the evidence on which the members of the Bombay Advisory Committee on Plague based their conclusions. He said that most workers on plague had arrived at a general agreement in regard to the rat. The point maintained was that the essential agent in the transmission of plague to man was the rat flea; the possibility of other methods of infection was not denied, but those other methods occurred so seldom as to be negligible from an etiological standpoint.

Dr. HOSSACK, in his reply, said that he had not brought forward any positive theories because his convictions were negative.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 11th, 1908, Dr. J. Walker Downie, the President, being in the chair.—Dr. John M. Cowan read notes of two cases of Diaphragmatic Palsy. One of the patients suffered from peripheral neuritis of alcoholic origin, and the diaphragm was completely paralysed for three months. Thoracic respiration was good and the ultimate recovery was almost complete. The second patient suffered from Landry's paralysis. Symptoms had commenced 14 days prior to admission to hospital. She was found to be unable to move her limbs in bed or to lift her head; her diaphragm was inactive and she suffered from more or less complete palsy of the third, fourth, fifth, sixth, and seventh nerves on the right side. The sphincters were active and sensation was normal. Improvement was manifest three days after admission and on the eleventh day all movements were possible, though they were weak. There was no atrophy of muscles and the reflexes rapidly reappeared and became even excessive. Recovery was good and complete.—Dr. Archibald Young showed a case of Paralysis of Lumbrical Muscles following injury.—Dr. George M. Gray demonstrated a dissected specimen of a limb showing Congenital Absence of the Fibula. In its place was a firm fibrous band to which in addition to the usual muscles was attached the popliteus. He

also read notes of a case in which there was hernia of a loop of bowel through a foramen in an appendix epiploica.—Dr. MacLennan showed a boy, aged 13 years, who had been operated upon for a Hydrocele of the Tunica Vaginalis and an Encysted Hydrocele of the Cord. At the operation the encysted part of the hydrocele was found to communicate with a patent processus vaginalis. A radical cure for hernia was performed after removal of the hydroceles. The interest lay in the specimen removed. Had a hernia descended the patent sac it would have passed down behind the hydrocele of the tunica vaginalis and would have formed a typical infantile hernia. Such a case as this was considered to go far in proving the saccular theory of hernia. The other points in favour of this theory were referred to as the post-mortem finding of patent peritoneal processes without the presence of herniæ or the history of such. It was noted also that ascites which did not produce a hernia by forming a sac often revealed its presence by entering a patent processus vaginalis showing as a congenital hydrocele. Such late congenital hydroceles often indicated a tuberculous peritonitis. The only similar effect of ascites was occasionally to protrude the umbilicus. Further, intra-abdominal tumours occasionally grew down such processes and formed the contents of herniæ, yet no one would imagine that such growths had the power to force the formation of hernial sacs. The descent of the testicle required a large opening, hence the prevalence of hernia in male infants. In the female similar herniæ (oblique inguinal) were found quite commonly and were always due to the presence of a congenital sac because the broad ligament formed part of the sac which would not be likely to be the case were the sac acquired. Again, it was commonly noted that in recent herniæ the sac was long and narrow, evidently being a pre-formed canal waiting only distension to form the ordinary bulky, blunt-nosed hernia. Finally, the success of the radical cure which dealt principally and most effectively with the sac showed that the sac was the principal factor in the hernia. Another point of interest in the case was the fact that the boy was treated as an out-patient after his operation. It was not contended that such grown-up children should be so treated, but the opinion that it was safe to operate for hernia upon children who could be carried home was given. The dressing employed was a small piece of gauze quite sealed over by adhesive rubber plaster. By this means the wound was protected from urine and other contaminations. As it was comfortable there was little tendency for the patient to interfere with it. The danger of operation for cure of hernia was twofold. Firstly, sepsis; it was as possible to overcome this danger in the out-patient as in the ward theatre. Secondly, the danger of giving of the stitches because of rough movements after operation on the way home; all such stresses upon the stitches were of trifling moment compared to those accompanying retching or even coughing, and in any case the radical cure depended not so much upon the deep stitches as upon the efficiency of the obliteration of the sac.

EIGHTH INTERNATIONAL OTOLOGICAL CONGRESS, BUDAPEST, 1909: LENVAL PRIZE.—Baron de Lenval, on the occasion of the Third International Otological Congress, founded a prize of 3000 francs to be awarded to such person as should invent and produce a small portable instrument materially assisting the hearing of the deaf. As no such instrument has yet been forthcoming to the satisfaction of the international jury appointed to adjudicate upon the matter, the accumulated interest of four years, amounting to about 400 francs, will be awarded as a prize for the best work that has been published during the last four years in the departments of the anatomy, physiology, or pathology of the organ of hearing. Competing works should be sent to the president of the jury, Professor Dr. A. Politzer, I. Gonzagasse 19, Vienna, before the end of February, 1909. The publication of the verdict of the jury and the presentation of the prize to the successful competitor will take place at the Eighth International Congress to be held at Budapest in August of this year. The following gentlemen constitute the international jury: Professor Politzer (President), Dr. Benni (Warsaw), Dr. Gellé (Paris), Professor Urban Pritchard (London), Professor Kirchner (Würzburg), Professor Grazzi (Florence), Professor Moure (Bordeaux), and Professor Böke (Budapest).

Reviews and Notices of Books.

Diseases of Occupation from the Legislative, Social, and Medical Points of View. By Sir THOMAS OLIVER, M.D. Glasg., F.R.C.P. Lond., Physician to the Royal Victoria Infirmary, Newcastle-upon-Tyne; Professor of Physiology, Durham University. London: Methuen and Co. 1908. Pp. xix.–427. Price 10*s.* 6*d.* net.

THE subject of diseases associated with occupation is obviously one of great national importance and of vital consideration to a country like Great Britain, with its large operative population engaged in various manufactures, trades, and industries; while recent legislation in connexion with workmen's compensation has brought the subject into special prominence. Sir Thomas Oliver in the preface to his book expresses the hope that it may "prove useful to Members of Parliament, to all persons interested in schemes for social betterment, to medical officers of health, and to members of the medical profession generally." To write a book dealing with difficult medical problems and involving a consideration of numerous complex technical processes and the chemical and physical principles underlying them in such a manner as to be intelligible to the non-medical reader without being so discursive as to be tedious to the professional man is a task of no little difficulty. We must at once express our opinion that Sir Thomas Oliver has done more than succeed in this, for his book is throughout interesting and indeed absorbing, and is an achievement upon which he may justly be congratulated.

A brief introduction is devoted to a review of the rise and progress of the factory system and to a *résumé* of the history of factory legislation and of its results. The effect of the factory laws has been to improve the conditions under which those engaged in labour of this kind have to work, to curtail the employment of children and women, to shorten the hours of work, and to introduce hygienic regulations in regard to dangerous trades. They have, at the same time, led to a restriction of the freedom of the individual both as regards employed and employers, since the former have to conform to the conditions enacted by the State and the latter have restricted powers, and both alike may have to submit to the dictates of organised labour. There can be no doubt, however, that the effect of factory legislation has been of incalculable help to those employed.

The first chapter deals with the factors contributing to industrial diseases and accidents. The importance of the education of the workers in regard to the special risks of their occupation and to the necessary precautions to be adopted is emphasised and a plea is entered for a greater degree of mutual trust and for a heartier coöperation of employers and employed. The influence of sex, age, indulgence in alcohol, fatigue, and the speed of machinery upon the incidence of industrial disease is discussed. Certain medico-legal questions involved by the questions of traumatism in relation to cancer, tuberculosis, and pneumonia are considered, and the necessity is emphasised for insisting on a post-mortem examination in all fatal cases of such kind where legal proceedings are involved. The difficult and unpleasant question of simulation or malingering in view of compensation is also dealt with and some of the more common forms are referred to. The remainder of this chapter is devoted to an interesting and instructive account of the manufacture of lucifer matches and of the occurrence of phosphorus poisoning among those employed in making them. The history of match-making and of the use of white phosphorus for the purpose is given at some length, while statistics are shown of the incidence of phosphorus poisoning in various countries. The offer of the

Belgian Government of a prize of 50,000 francs for the invention of a safety "strike-anywhere" match free from phosphorus, and the discovery by MM. Sevène and Cahen of France of the fact that in sesqui-sulphide of phosphorus there existed a substance capable of being employed for this purpose without causing poisoning are referred to. The general adoption of this substance and the beneficial results which have accrued therefrom, whereby a dangerous industry has been rendered comparatively a healthy one, afford a striking instance of the importance of industrial hygiene to the worker.

The second chapter deals with diseases due to gases and vapours, such as carbon dioxide, carbon monoxide, illuminating gas, water gas, sulphuretted hydrogen, acetylene, benzene, bi-sulphide of carbon, and petrol, and also with the poisonous effects sometimes obtained from ferro-silicon and nickel carbonyl. Carbon monoxide poisoning is considered in some detail and the question is discussed as to whether a relative tolerance to this gas can be acquired. It is shown that in animals a compensating factor may be developed in the form of an excess of red blood corpuscles, whereby the processes of oxidation may be effectively carried on. The account of poisoning by sulphuretted hydrogen is of special interest from the careful record given by Sir Thomas Oliver of several cases observed by himself. One of the most striking features is the extraordinary rapidity with which death occurs—respiration becomes gasping a few seconds after exposure, and almost immediately afterwards, without further warning than the utterance of a cry, the individual falls dead in a state of extreme rigidity. Death is attributed to the action of the gas on the respiratory centre or on the endings of the pulmonary branches of the pneumogastric nerves.

The effects of working in compressed air in caissons have, in comparatively recent times, attracted considerable attention owing to increased employment in caissons in modern engineering works. The subject has been carefully worked at since the time of Paul Bert by many physiologists, notably in this country by Dr. Leonard E. Hill and by Sir Thomas Oliver himself. An interesting account is given of the effects of compression and decompression, of the symptoms of "caisson disease," and their prevention and treatment. The pneumatic theory—that the symptoms are mainly due to the liberation of the gases dissolved in the blood plasma and tissue fluids when the pressure is too rapidly lessened—was first demonstrated by Paul Bert and has been amply confirmed by recent work which has also served to emphasise the necessity for sufficient time to be allowed for decompression and to establish the importance of recompression in the treatment of symptoms when they have developed.

Special chapters are devoted to diseases caused by diminished atmospheric pressure and by chemical trades, including the manufacture of chloride of lime, bleaching powder, and sulphuric and hydrochloric acids. The effects of nitrous and nitric fumes, of aniline, of nitro- and dinitrobenzene are also considered. The question of the preparation of explosives and the effects upon health of the gases evolved are also discussed.

Under the heading of metallic poisons, lead, arsenic, copper, brass, zinc, mercury, and manganese are considered and the effects upon those working with these substances or their preparations are described. The important subject of lead poisoning—to which Sir Thomas Oliver has devoted so much personal attention—is, as might have been expected, dealt with in an exhaustive and authoritative manner. The facts that young adults are more susceptible to lead poisoning than older people and that women, in addition to being more susceptible, are more liable to suffer from the severe manifestations, such as the cerebral forms, are emphasised. The important questions of substitutes for white lead and the use of leadless glaze for pottery are also briefly discussed.

An interesting chapter is devoted to the diseases produced by organic and inorganic dust, including the pneumokonioses. The various industries in which dust is freely formed, such as those connected with cotton, flax, linen, and jute, are described, and other dusty occupations, such as those concerned with box-wood rule making, shoddy and rag sorting, and tobacco, cigar, and snuff making are also discussed and the appropriate precautions which should be taken are indicated. The effects of dust are further considered in a chapter on mining. It is of interest to compare the incidence of the so-called "miners' phthisis" in the Transvaal gold mines, where it is extremely high, with that in this country, where, at any rate in the coal mines, it is largely a thing of the past; indeed, the coal miner now appears to suffer less from pulmonary tuberculosis than other occupied males. Interesting information is also afforded in regard to various other forms of mining and quarrying and their effects upon the health of the workers.

Under the heading of diseases due to parasites a useful summary is given of ankylostomiasis which has proved to be so serious a condition in many countries and concerning which a considerable amount of valuable work has been done within recent years. In similar fashion the subject of industrial anthrax is dealt with. A special chapter is devoted to the presentation of the various occupational neuroses and another to a miscellaneous collection of trades and occupations which are found to have injurious effects upon those engaged in them which are not included in the groups previously described, such as tea tasting, fish curing, label licking, sugar refining, glass making, and brick making. The concluding chapter is devoted to the question of rescue work in mines and a plea is put forward for the establishment of training stations for instruction in these matters and in the use of some of the valuable apparatus which has been introduced of recent years.

Sir Thomas Oliver's interesting book is one which we can thoroughly commend to those classes of readers for whom it is written, and it cannot fail to be of great value not only for purposes of reference but also for the many practical suggestions with which it abounds for the prevention and treatment of the conditions incidental to many forms of employment.

A Manual of Infectious Diseases. By E. W. GOODALL, M.D. Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylums Board; and J. W. WASHBOURN, C.M.G., M.D. Lond., F.R.C.P. Lond., late Physician to Guy's Hospital and Lecturer in the Medical School. Second edition, revised and enlarged by E. W. GOODALL. London: H. K. Lewis. 1908. Pp. 426. Price 14*s.* net.

IN the preface to this volume Dr. Goodall pays a just tribute to the late Dr. J. W. Washbourn with whom he was associated as co-author in the first edition of the work. That edition was published in 1896 and since that time the knowledge of infectious diseases has progressed considerably and has necessitated extensive changes in the matter and arrangement of the contents of the book. Glanders in man is a comparatively rare disease but it occurs sufficiently often to deserve a place in a work of this nature, and a chapter on this condition now finds a place in it. A good account is given of the two forms—acute and chronic—in which the disease has been met with. The acute form is liable to be mistaken for rheumatic fever, influenza, or a "severe cold," or some pyogenic or septicæmic condition. Dr. Goodall points out that the chief points on which emphasis should be laid are:

1. The occupation of the patient; any acute suppurative disease or indefinite febrile affection in a person who has to do with horses should arouse suspicion. 2. Every case, at any rate every obscure case, of pyæmia or septicæmia should be submitted to bacteriological examination, which will settle the diagnosis in most cases so far as glanders is concerned. 3. The most characteristic and almost pathognomonic clinical sign is the presence of nodules and abscesses in the muscles. Dr. Goodall remarks, quite rightly, that it is rare to find intramuscular abscesses in other forms of pyæmia or in enteric fever. The contents of these abscesses often consist of reddish grumous matter rather than of ordinary yellow pus. 4. The cutaneous eruption is also fairly characteristic but frequently it does not appear till a day or two before the death of the patient. It must also be remembered that the discharge from the nose is often wanting in human glanders. A careful description is given of the pathogenic micro-organism of the disease—the bacillus mallei—and of mallein, a toxic substance obtained from the bodies of the bacilli.

A chapter has also been added on cerebro-spinal fever, a disease to which special attention has been recently devoted. Considerable divergence of opinion has been expressed as to the modes by which the malady is spread. The point most under discussion has been its direct infectivity from the sick to the healthy. Dr. Goodall's comments on the matter are interesting. He admits that this method of propagation has been denied by most eminent authorities but he considers that a study of the literature of the subject scarcely supports their denial. He argues that it is true that outbreaks of the disease are often circumscribed and that sporadic cases are frequent; also that bacteriological evidence goes to show that the virus is not very tenacious of life outside a living body. On the other hand, he says, there can be no doubt that, given favourable circumstances, and sometimes apparently even without these circumstances, not only is the disease capable of being spread by direct infection of the healthy by the sick but the infecting organism can be harboured in clothing and other fomites, and can be conveyed in the mucous membranes of healthy persons. Undoubtedly the circumstances favouring its direct spread are overcrowding and want of proper ventilation. The description of the clinical characters of cerebro-spinal fever is clear and accurate, and the morbid anatomy and bacteriology of the disease are discussed in the light of the most recent investigations; the view is taken that the pathogenic organism is the diplococcus intracellularis meningitidis of Weichselbaum.

Another addition to this edition is a chapter on plague. An interesting account is given of the investigations which have been made in reference to the dissemination of the disease. The connexion between the occurrence of the disease in rats and subsequently in man is fully discussed, and the part played by the flea of the rat as a carrier of the plague bacillus is described. Other modes of dissemination are also discussed and it is pointed out that in the pneumonic and septicæmic forms the bacilli are contained in the sputum in one case and in the excretions and secretions in the other, so that in these forms the disease may spread directly from the sick to the healthy. It has been further shown experimentally in guinea-pigs that the virus may enter through an abrasion or wound of the skin, even though it be small; and Dr. Goodall considers that (apart from flea-bites) a wound of the skin or mucous membrane is occasionally the portal of entry in the human subject. Some writers have believed that the virus is taken in with contaminated food and enters the system through the alimentary tract, the food having been infected by rats. Dr. Goodall argues, however, that although it is quite true that rats can be made to contract the disease by feeding them with infected food, yet in such cases inflammation and ulceration of the intestines occur and the primary bubo is situated in the mesentery; whereas in the natural form of the disease, both in rats and in the human subject, the glands involved in the primary bubo are those which drain some portion of the skin and the intestines are unaffected. There can therefore be but little doubt that in the majority of cases the virus enters through the skin (by the bite of the rat-flea) and not through the alimentary tract.

The whole contents of this volume form interesting reading and afford information on infectious diseases which cannot be otherwise obtained in a single text-book. The book is well printed in a type which is not trying to the eyes and the numerous photographic illustrations are excellently reproduced.

Nothnagel's Practice: Diseases of the Intestines and Peritoneum. By Dr. HERMANN NOTHNAGEL, late Professor of Special Pathology and Therapy, University of Vienna. Edited, with additions, by H. D. ROLLESTON, M.A., M.D. Cantab., F.R.C.P. Lond., Physician to St. George's Hospital and to the Victoria Hospital for Children, London; sometime Fellow of St. John's College, Cambridge. Second edition, thoroughly revised. Authorised translation from the German, under the editorial supervision of ALFRED STENGEL, M.D. London and Philadelphia: W. B. Saunders Company. 1907. Pp. 1059. Price 21*s.*

Professor Nothnagel's encyclopædia of medicine has achieved a very important position as a standard and authoritative work of reference. The present volume, which deals with the diseases of the intestines and peritoneum, is of special interest, since it forms one of his own contributions to the encyclopædia. That it has been found useful is shown by the fact that it has been necessary to issue a second edition of the English translation after the exhaustion of the original edition and a reprint of it. In a work of this magnitude it is impossible within the compass of a review to do more than to refer briefly to some of the more important articles. The general scheme of the book and the arrangement of the material remain as in the former edition but there are numerous additions. The introductory sections on the chemical processes which occur in the intestines and on the bacterial flora of the intestines have been brought up to date. In the latter the characters of the chief organisms found in the alimentary tract are carefully described.

An interesting account is given of the intestinal movements, embodying many of Professor Nothnagel's own observations on the subject as well as more recent researches. A short section on intestinal sand, written by the editor, Dr. H. D. Rolleston, is given and two forms, true and false, are differentiated, the former being usually associated with mucous colic, while the latter is, as a rule, due to altered and inspissated food residues. The subject of constipation is discussed at some length. Its varied etiology is described and stress is laid upon the factors leading to the functional form of this condition. A critical discussion of the secondary effects of chronic constipation forms a part of this section, and the erroneous and exaggerated statements that are often made in this connexion are pointed out. In regard to the treatment of chronic constipation the importance of measures other than drugs is fully emphasised. The various forms of diarrhœa are next considered and among these the gastric and nervous forms are more carefully described and separated than is usual. Intestinal dyspepsia, meteorism, and colic are considered and the appropriate treatment is given. Under the heading of nervous enteralgia a form of pain not due to tonic contraction of the intestine is described, and in this category

is included a condition which Professor Nothnagel has called pseudo-perityphlitis. Intestinal hæmorrhage with the diagnosis of the origin of the blood and the treatment of the various conditions causing it are considered in some detail. Some interesting observations follow concerning the urine in diseases of the intestine, with special reference to the conditions of albuminuria, cylindruria, and indicanuria, in relation to various intestinal conditions. Enteritis, proctitis, and phlegmonous and membranous enteritis are each separately described, with their pathological anatomy, symptoms, and treatment. A note on sprue is added by the editor. Mucous colic and membranous catarrh of the intestine next receive detailed consideration and Professor Nothnagel's well-known views as to the nature of these conditions are given—viz., that in the majority of cases there are no inflammatory lesions but that they are due to a neurosis of secretion or a myxoneurosis, but the existence of cases in which intestinal catarrh coexists is admitted. The various forms of ulceration of the intestine are differentiated and the account of ulcer of the duodenum is worthy of special mention.

A very clear and full account is given of the conditions of thrombosis and embolism of the mesenteric vessels. Clinically, in cases of occlusion of the mesenteric arteries the symptoms may conform to one of two types—one in which there is profuse intestinal hæmorrhage with its associated conditions; and the other in which the general picture is that of acute intestinal obstruction. In the former type it is sometimes possible to arrive at a correct diagnosis, while in the latter type it may be quite impossible. The subject of hæmorrhoids is discussed at some length and in regard to their etiology it is maintained that they are the result of local mechanical factors, and that it is not necessary to assume the existence, on the one hand, of a hæmorrhoidal diathesis or, on the other, of local disease of the blood-vessels themselves. Stasis in the portal system, whether the result of hepatic cirrhosis or of chronic systemic venous congestion, although usually given as one of the most important causes, is regarded as a factor of subordinate importance.

The nervous diseases of the intestines are then considered and are divided into motor and sensory, the former comprising peristaltic unrest, nervous diarrhœa, and enterospasm. In connexion with the last of these the condition of proctospasm is separately dealt with. Among the sensory nervous disorders that of enteralgia receives chief notice, and especially that form due to lead poisoning.

Among the anomalies in position and form of the intestine that of idiopathic dilatation of the colon or Hirschsprung's disease, which has recently attracted considerable attention, is described and a succinct account of its nature and pathogenesis is given. Malignant neoplasms of the intestinal canal, their nature, situations, symptoms, and effects, are described in considerable detail and many statistical observations are incorporated. The special characters of carcinoma of different parts of the intestine are separately discussed. An interesting note by the editor on primary carcinoma of the vermiform appendix points out the early age incidence and the relative infrequency of secondary growths. In connexion with carcinoma of the duodenum a convenient classification into supra-, infra-, and circum-papillary carcinoma is given, according to the relation of the growth to the ampulla of Vater, the clinical features being different in the three cases; in the first the symptoms are practically those of stenosis of the pylorus, while in the infra-papillary cases there are in addition stasis of bile and pancreatic juice with regurgitation of these fluids into the stomach. In the cases which begin in the region of the ampulla of Vater the symptoms are those of progressive anæmia, cachexia, and jaundice.

The subject of internal stricture of the intestine is critically examined. The rarity of stricture from cicatricial contraction of dysenteric ulceration first affirmed by Woodward is confirmed. Stercoral and tuberculous ulcers, on the other hand, are both now recognised as causes, and in connexion with stricture of the rectum it is stated that tuberculosis is possibly a more common cause than is generally supposed, and further, that some of the cases which have been attributed to syphilis are in reality of tuberculous nature and due to a stenosing tuberculous proctitis. A separate description is also given of hyperplastic tuberculosis of the cæcum, a condition simulating new growth which has within recent years been differentiated and which it is conjectured may be the result of infection by attenuated tubercle bacilli or by bovine bacilli.

Internal obturation of the intestine is next considered and then invagination is described and discussed at great length. The observations of Mr. D'Arcy Power and of Mr. E. M. Corner on this subject are incorporated by the editor. The various forms of internal herniaform incarceration of the intestine and of volvulus are carefully differentiated. The whole subject of stenosis and occlusion of the intestine is then reviewed, and some general remarks upon the diagnosis and treatment of the various conditions causing them are given, which for breadth of view and for practical usefulness it would be hard to improve upon. The difficulty of diagnosis is admitted but the manner of investigation and the rules for deciding upon what form of treatment shall be adopted are given clearly and forcibly.

The subject of diseases of the peritoneum is dealt with in an equally exhaustive manner. After some preliminary physiological details, a full account is given of the pathogenesis and symptomatology of ascites. The varieties of chylous ascites are carefully differentiated and described. The subject of inflammation of the peritoneum is treated most fully and a careful review of the recent work on the questions of its etiology and treatment is given, so that this section practically forms an authoritative monograph on this condition. The same may be said of the description of appendicitis, which is most complete and exhaustive. It represents a most thorough examination of the very extensive literature of this important disease and is throughout critical and impartial. Subphrenic abscess is described and its clinical features are set forth. Chronic peritonitis, including tuberculous peritonitis, is next considered. The various forms of new growth of the peritoneum are enumerated and briefly described. In addition to the numerous references which are given at the foot of nearly every page there is an extensive bibliography arranged alphabetically at the end of the book.

The present edition owes a great deal to the editor who has interpolated notes giving recent views and doing justice to the work of British and American investigators. We can recommend this book as a thoroughly trustworthy work of reference.

A Text-book of Operative Dentistry. By Various Authors. Edited by C. N. JOHNSON. With 618 illustrations. London: Rebman, Limited. 1908. Pp. 755. Price 25*s.* net.

ALTHOUGH we cannot subscribe to all the statements in this book, nevertheless to anyone interested in the practical side of dental surgery there is much that is extremely valuable and suggestive. The book opens with two most excellent chapters on the anatomy and histology of the human teeth, illustrated in an admirable way. The various sections dealing with the technique of filling teeth are as thorough as could possibly be wished for and express the latest views of those competent to speak on such questions. On the subject of pyorrhœa alveolaris Dr. J. D. Patterson inclines to the view that this disease is usually of local origin,

and in discussing the question of etiology he remarks that "any irritant, of whatever nature, which impairs the integrity and continuity of the gum margin, may cause pyorrhœa; without this impairment the condition will not be established." With regard to the debated question as to the relation of the calcareous deposits so often seen in this disease, he remarks that they are "not precedent" but "are subsequent" to irritation and exudation.

A considerable portion of the book is devoted to irregularities of the teeth. The stand taken is that of treatment by expansion rather than extraction. This is a question on which we expressed our views in a leading article on the Correction of Irregularities of the Teeth in THE LANCET of June 27th, 1908 (p. 1852), and the criticisms then advanced apply with equal force to the treatment suggested in this book. Still, agreeing or not with the views of the author, we feel that the subject has been dealt with in a concise and practical way and should be of value to those who hold that expansion of the dental arch is the ideal method of treatment.

Pathogenic Micro-organisms, including Bacteria and Protozoa: a Practical Manual for Students, Physicians, and Health Officers. By WILLIAM HALLOCK PARK, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Research Laboratory of the Department of Health, New York City; assisted by ANNA W. WILLIAMS, M.D., Assistant Director of the Research Laboratory, &c. Third edition, enlarged and thoroughly revised. With 176 engravings and five full-page plates. London: Henry Kimpton; and Glasgow: Alexander Stenhouse. 1908. Pp. 642. Price 18*s.* net.

AMONGST text-books on bacteriology this work by Dr. Park is distinguished by its individuality and by the possession of several distinctive characteristics. While it has the clearness of expression and orderly arrangement which mark many similar works by American authors, it is less rigidly confined to the strictly utilitarian aspect of the subject and admits the discussion of purely scientific matters as being both important in themselves and as leading to further progress. It is a book, therefore, which appeals to the post-graduate, the physician, and the medical officer of health even more than to the medical student in the earlier stages of his career. It is further distinguished by the incorporation of a considerable amount of original work, much of which has been done in the research laboratory of which Dr. Park is the director. When practical hygienic measures are dealt with the writer speaks with authority based on the wide experience gained in the departmental work. In consequence of the unusually complete and original treatment of certain subjects there are others which seem comparatively neglected, but in no case is the attention given to them really inadequate. The book is not merely one more text-book added to the already long list of such works but a serious addition to our knowledge in certain branches of bacteriology.

Since it was last reviewed in these pages[1] it has increased in size by about 100 pages and additions have been made to the plates and illustrations. It has been very carefully revised and in many cases rewritten. As there has been considerable compression of the earlier chapters and as in places smaller type has been used than in the second edition the new matter added is greater than would appear from the mere increase in length. The material contained in the appendix to the old edition has been incorporated in the text of the new one and a glossary of terms has been added. There are new chapters on opsonins and the opsonic index, on the bacteriology of the normal intestine, and on the purification of antitoxic sera from non-antitoxic substances. The theoretical and practical aspect of the determination of the opsonic index and of its use as a basis for treatment by vaccines is discussed and much original work as to the various factors which influence the accuracy of the values determined is cited. As to the value of the treatment of disease by vaccines more evidence is demanded. The chapter on the bacteria of the normal intestine serves as an introduction to those devoted to the study of the colon, typhoid, and dysentery bacilli; it deals with a very complex subject which presents great difficulties to experimental investigation and about which there is at the present time little accurate information, though there is an extensive literature. By methods based on the work of Atkinson and Gibson in the research laboratory the New York health department has been able to eliminate from the ordinary anti-diphtheria serum the non-antitoxic and the greater part of the harmful constituents; at the present time the antitoxic globulin solution is the only form of antitoxin employed by the department. This purification diminishes the incidence of rashes, reduces the volume to be injected, and as a consequence facilitates the use of large doses. The "serum sickness" (anaphylaxis) is discussed.

A useful tabulated synopsis of methods to be used in the examination of material from post-mortem examinations has been introduced in Chapter XII., and, as in the former editions, the phenomena of agglutination are given with considerable detail. Sections on bacillus carriers and on the vitality of the bacillus typhosus in water are added. In the chapter on the bacillus tuberculosis descriptions of the various tuberculins and their use in treatment and diagnosis are given, as are also the cuti- and ophthalmo- reactions.

In the second edition considerable importance was attached to the portion of the book dealing with protozoa. In the third edition still more attention, corresponding to the increased importance and growth of our knowledge of pathogenic protozoology, has been devoted to this section. A new basis of classification is given and the section has been very largely rewritten and now forms a very good brief account of the subject.

The appearance of the book is satisfactory and the printing is good. The majority of the illustrations are excellent but some few appear to have deteriorated a little. It is a book strongly to be recommended to the advanced student.

LIBRARY TABLE.

The Libraries of London. A Guide for Students, prepared on the Instruction of the Senate of the University of London by R. A. RYE. London: Published by, and to be obtained from, the University. 1908. Pp. 90. Price 6*d.*; post free 9*d.*—This is a distinctly useful publication for those engaged in any branch of research. It gives particulars of the foundation of the principal London libraries, the number and scope of their books, and the facilities which they offer to students. Many smaller libraries have a few lines devoted to their objects. We could have wished that the handbook had been produced on rather a fuller plan, for the inclusion of twice as much information about individual book collections would have more than doubled its value. However, Mr. Rye seems to have performed very efficiently the task which was set him and the book as it stands forms a useful index for the direction of students to the libraries which will be most likely to suit their requirements.

An Index of Treatment by Various Writers. Edited by ROBERT HUTCHISON, M.D.Edin., F.R.C.P.Lond., Physician to the London Hospital, and H. STANSFIELD COLLIER, F.R.C.S. Eng., Surgeon to St. Mary's Hospital. Fourth edition. Bristol: John Wright and Sons. 1908. Pp. 926. Price 21*s.*—This work made its appearance in November, 1907, and now the fourth edition, dated November, 1908, is before us. We suppose that the intention of the publishers is to keep the book up

[1] THE LANCET, July 21st, 1906, p. 165.

to date by frequent issues but we should hardly have thought that this would have necessitated four editions within 12 months. It would, we suggest, be a better plan in future to print an edition large enough for requirements not more than once a year. At the same time we commend the printing of a chronology of the various issues, and we wish that all medical publishers would follow Messrs. Wright and Sons' example in this respect. During its last revisions a textual inaccuracy and certain clumsy entries in the index to which we called attention in reviewing the first edition have been expunged. The scope of the work remains unchanged, no detailed description being given of complex surgical or obstetrical operations, but full attention being paid to other methods of treatment. The book is of especial use to the general practitioner who will find in it many valuable suggestions for the management of disease. We do not quite understand, however, how tender spots can be sought for carefully under an anæsthetic as recommended in the treatment of vaginismus. But the merits of the book far outweigh its demerits and amongst the former we place the excellent little pictures illustrating the article on dislocations. In the present edition articles on health resorts, hypnotism, prescribing, gunshot wounds, cut throat, and synovitis have been added. The first of these contains some hints of a general nature upon climatological treatment, by Dr. Leonard Williams who makes the best of the space at his disposal; in the second Dr. J. Milne Bramwell writes upon a subject of which he is well qualified to treat. The "prescribing" section, by Dr. J. Calvert, deals with common incompatibles, whilst Mr. S. Maynard Smith writes from South African experience upon gunshot wounds, a section which makes more hopeful reading than could have been possible 50 years ago.

Your Child's Health: Medical Notes for Mothers and Teachers, School Nurses, and Health Visitors. By JOHN GRIMSHAW, M.D., B.S. Lond., D.P.H. Camb. London: J. and A. Churchill. 1908. Pp. 144. Price 2*s.* 6*d.* net.—The scope of this handbook is indicated by its title. It is a comprehensive summary of elementary hygiene and prophylaxis, as they concern the bringing up of children, expressed in language that can be understood by any person of ordinary intelligence. Most of the chapters are written in the imperative tense, rules being given rather than reasons, as is right considering to whom they are addressed. We are glad to say that directions for treatment are limited to the simplest remedies, so that the book will not extend the overlengthy list of "Home Doctors" and kindred publications. The subjects dealt with range from the health of the expectant mother to vocal exercises for stammering. A useful page is occupied with "milestones" that should mark the development of a normal child. The directions for hand-feeding infants concern only the ordinary milk, barley-water, sugar, and cream mixture, the citration or "modification" of milk being left to medical advice. There are some useful pages on economical and wholesome cooking and on accidents and emergencies. It is neither to be expected nor desired that a work of such a nature should contain other than well recognised teaching, and Dr. Grimshaw has succeeded in presenting in a striking manner the leading rules to be observed and the common precautions to be taken which are well known to medical men as the foundations of health in the rearing of children.

The Royal London Ophthalmic Hospital Reports. Vol. XVII., Part 3. Edited by WILLIAM LANG, F.R.C.S. Eng. London: J. and A. Churchill. November, 1908. Pp. 333 to 529. Price 5*s.* net.—This number of the Moorfields Hospital Reports completes the seventeenth volume. The following consideration of the contents will show that the usual high standard has been well maintained. 1. Mr. E. Nettleship continues his exhaustive investigation of Retinitis Pigmentosa and Allied Diseases. This concluding section of his work deals with the fertility of parents, "anticipation" in the disease, the kind of consanguineous ancestors, the relation between sex and age, variations in clinical characters, variations in ophthalmoscopic changes, and so on. It contains a wealth of detail which will prove of inestimable value to clinicians and throws new light upon an obscure problem. The author passes on to discuss congenital absence of the choroid, retinitis punctata albescens, and congenital night-blindness without changes. Here the literature is fully collated and many new cases are added, much information being conveyed as to the heredity of the diseases. The three parts of the communication which have appeared in this volume of the reports contain the material for a complete monograph on retinitis pigmentosa. The presentation of the material, whilst admirable from the point of view of research, is involved and fails to throw the most important observations into proper relief. There is danger therefore that this invaluable communication may fail to receive the attention which it merits. It would be of great service to his colleagues if Mr. Nettleship would embody his researches in a systematic monograph. 2. Mr. W. Ilbert Hancock writes upon certain points in regard to the Fields and Fundus Changes in Obstruction of the Central Artery of the Retina. He draws special attention to the previously recorded fact that in many complete cases of so-called embolism of the central artery a small portion of the peripheral temporal field escapes total destruction. The most probable explanation is that the corresponding part of the retina receives its nourishment from the choriocapillaris of the choroid. The suggestion is thrown out that the white appearance of the retina in the early stages of the condition is not due to œdema but to coagulation necrosis. 3. Mr. George Coats brings forward a pathological communication on Forms of Retinal Disease with Massive Exudation. Under this somewhat cumbersome designation he collects the recorded cases of folding of the retina with inter- and sub-retinal exudation, adding others from his own experience. He attributes them for the most part to deeply seated retinal hæmorrhage with subsequent organisation. The article is beautifully illustrated with many microphotographs of the pathological anatomy, and it will doubtless prove to be for some time to come the authoritative exposition of the subject.

New Inventions.

A MODIFIED EVACUATING APPARATUS.

IT has long been a matter of surprise to me that lithotritists should have been content to use the same evacuator for small boys as for adults, seeing that the urinary bladder is so different an organ in the two cases. I have of late had a not inconsiderable number of cases of stone in the bladder to deal with—upwards of 60 during eight months of the past year—and have felt at last compelled to devise an instrument specially adapted for use with young children. The two important points in which this modified evacuator differs from the forms in use for adults are, first, its size, the rubber bulb having little more than half the content of that of the adult pattern of the same model—i.e., that designed by Mr. H. M. N. Milton, late chief surgeon, Kasr-el-Aini Hospital, Cairo—and secondly, in the greater softness and compressibility of the bulb. The evacuating catheter is also shorter. For these alterations I claim the following advantages:—1. Removal of the risk of over-distension. With an evacuator containing far more fluid than does the bladder of the patient it needs constant watchfulness to avoid the introduction of a dangerously large amount, especially when, as may often be the case, the preliminary distension of the bladder

has been effected by an assistant in the absence of the operator. 2. A far more accurate estimation of the condition of the bladder as regards muscular tone and resilience. In the case of children the resistance of the stiff incompressible bulb of the ordinary evacuator is out of all proportion to that of the delicate bladder wall, so that an important indication of the condition of affairs is, to a great extent, lost. 3. There is a great diminution of fatigue for the operator. He is not only spared the strain of repeated compression of an unnecessarily stiff bulb, but he is able to close his hand freely upon it.

As will be seen by the illustration, the collar mounts are made to unscrew and the whole instrument may be easily taken apart for sterilisation. I see no reason why other models than Milton's should not be modified in a similar way with equal advantage; it might even be possible in the case of the more expensive ones to have interchangeable bulbs for use with adults and children respectively. The evacuator has been made for me by Messrs. Down Bros., of St. Thomas's-street, London, S.E., who have carried out my instructions most carefully.

ARTHUR LANKESTER, M.D. Lond.
C.M.S. Hospital, Peshawar, North India.

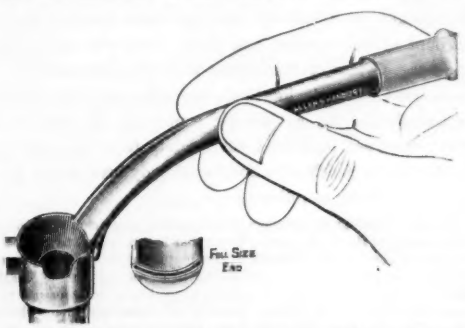
A SQUINT READER.

THE Squint Reader which is here illustrated has been designed by Dr. Arthur Greene of Norwich. It is intended to provide a strong and inexpensive apparatus by which the repeated and long-continued binocular use of the eyes may be insured during the treatment of concomitant squint in

a child able to read, the vision of whose squinting eye has been by exercises and by the aid of appropriate lenses brought up, or nearly up, to that of the "fixing" eye. By placing a book on the book-holder with the middle of the *page to be read* (not the middle of the book) opposite the middle of the apparatus, the sliding "interruption block" can easily be moved to such a position that on the child looking through the sight-hole end it is impossible for him to read the lines of the book unless exercising true binocular vision. The apparatus is very portable, as it can be folded so as to be almost flat and nearly any kind of book or magazine can be used. The instrument has been made by Messrs. F. Davidson and Co. of Great Portland street, London, W.

A CHLOROFORM TUBE-TERMINAL FOR USE WITH BRÜNING'S BRONCHOSCOPE.

THE accompanying illustration shows a blackened German-silver tube with a flattened concave end for the delivery of chloroform vapour from a Junker's bottle when Brüning's bronchoscope has been passed through the vocal cords into the trachea or one of the bronchi. By means of this chloroform tube-terminal, which at its end is concentric with the orifices of the various portions of the specula of the bronchoscope, and has also a short flange for steadying it in



position, chloroform anæsthesia may be suitably maintained without interference with the surgeon's view from the eye-piece or the manipulation of instruments within the speculum. The blackened surface of nitric bronze does not reflect the light of the electric lamp and is practically invisible through the instrument while in use. The appliance has been made for me by Messrs. Allen and Hanburys of Wigmore-street, London, W.

Harley-street, W. H. BELLAMY GARDNER.

COMBINED GAG AND SELF-RETAINED TONGUE FORCEPS.

WITH the object of overcoming the difficulty of holding forward the tongue during the administration of anæsthetics I have devised the instrument here illustrated, which has been made for me by Messrs. Billings and Sons of Manchester. There is nothing original about the gag with the exception of the studs on the inside of the blades. After placing the instrument between the patient's teeth it is

opened and the tongue is caught with the forceps in the middle line. The forceps is then pulled forwards and fixed on the stud until the administration of an anæsthetic is finished. Thus the anæsthetist has his hands free. The forceps is short and may be easily covered with an ordinary chloroform mask. The instrument may also be useful in various operations on the tongue.

Merthyr Tydvil. J. MEREDITH THOMAS.

THE LANCET.

LONDON: SATURDAY, JANUARY 9, 1909.

The Notification of Births Act: A Protest.

THE borough council of Hackney being about to adopt the Notification of Births Act, certain of the local medical practitioners decided to protest against it. 59 were given the opportunity of signing an emphatically worded document; of these 53 did so, three refused only on account of the wording, and three alone were in favour of the Act. Copies of the protest were then forwarded to the councillors at their meeting, who adjourned the proposal of adoption of the Act for six months by 37 votes to 19. The protest put in a brief but forcible form the objections to this Act to which attention has already been called in our columns. It ran as follows:—

> We, the undersigned members of the medical profession practising in the borough of Hackney, having heard that it is proposed to compel us to give our services gratuitously in the matter of the early notification of births (as we are already compelled to do in the case of deaths), hereby protest in the strongest manner against what we consider to be a flagrant injustice, a glaring instance of class legislation, whereby the skilled workman is ordered to give his services to the State, and that without consulting his wishes or recompensing his labours in the matter! We can imagine nothing more contrary to the elementary rules of justice; and coming as it does from those set in authority to administer justice, we are equally surprised and dismayed! We can only conclude that those who advocate such a measure are either ignorant of, or indifferent to, the rights of a class of citizens who already give more of their time and skill for the public good than any other class! and it is a strange return for such services, to decree, that because in the past we have done much, and done it willingly—we shall in the future do more, and do it compulsorily. We believe that those who support this measure have done so without realising that it would be quite as reasonable to order the carpenter or the mechanic to give his skilled labour free of charge for municipal undertakings, as it is to demand that the medical practitioner should give his, gratuitously and compulsorily to the service of the State!

Then follow the 53 names.

As we pointed out in the last number of the old year, in the section of our Annus Medicus reserved for the consideration of public health topics, "almost year by year, if not session by session, the State is imposing fresh duties and responsibilities upon the medical profession, and the profession accepts them in a manner which is very remarkable notwithstanding the fact that the State frequently omits to consider any question of rewards while showing itself astonishingly alert in the matter of penalties," and this protest on the part of the medical practitioners of Hackney against this identical habit of the State comes very appositely to prove our point. It is, of course, quite clear that the State cannot continue indefinitely this disregard for what the protesters term "the elementary rules of justice"; and we must confess ourselves as being largely in sympathy with the practitioners of Hackney in making a formal protest unaccompanied by any threats whatever. The Hackney borough council has evidently taken this view, and though an awkward *impasse* may be the immediate result good ought to come from a deliberate survey of the situation. Time will also show the protesters how far their action meets with the general sympathy of the profession. For it may be pointed out that, as so often happens, medical men are not unanimous in their attitude. Many approve the measure, and of those who object to it a large proportion base their objection not so much on the exploitation of their services as on the possible difficulties in which they may be placed as to the preservation of professional discretion. If the State, however, persists in heaping up responsibilities and penalties upon the profession without consulting it, the forces of demand and supply must result in augmented fees being charged for medical services; in other words, these duties amount to a charge upon the time of the medical practitioners which must eventually be paid for in one shape or another. The State is, we think, unwise to treat in any other than a thoroughly generous spirit a profession to which the poorer classes owe such an enormous debt. Everything should be done to foster the highest principles of the profession and everything avoided which savours of vexatious treatment on the part of the State. We trust, therefore, that the disabilities with which the Notification of Births Act is associated will be removed and that this very useful measure will be generally adopted. But in the meantime we are sure that the profession will do nothing which is derogatory to its own dignity as a profession in the eyes of the public.

The Surgery of Renal Calculus.

THE main cause of the improvement in the results of renal surgery during recent years has undoubtedly been the improvement in the diagnostic means available, and the chief of these are cystoscopy and radiography. In THE LANCET of Jan. 2nd, p. 8, was published an article by Dr. DAVID NEWMAN of Glasgow on the surgery of calculus of the kidney, and therein he has detailed the methods by which the surgeon assures himself of the existence of a stone in the kidney and the manner in which the operative procedures for its removal should be performed, and this article shows clearly how great an advance has been made in the recognition of surgical conditions of the kidney. The cystoscope is of immense value in diagnosing vesical lesions, but, curiously, it is of equal, if not of greater, importance in the diagnosis of morbid conditions of the kidney. By means of the cystoscope apertures of both the ureters can be seen and their appearances noticed. It may be laid down as a general rule that when the orifice of one ureter is altered, while the other ureteric orifice is normal, the kidney lesion is on the side of the morbid opening. Further, the liquid coming from the ureter is visible and it is important to bear in mind the normal appearance of this ureteric stream, so that any abnormalities in it may be recognised. In health the flow of urine from the ureteral aperture is not continuous, but the liquid collects slowly above the closed orifice and then suddenly at intervals it is thrown into the bladder. Every 30 or 40 seconds some 10 or 15 drops are ejected alternately from each ureter. The slow distension of the ureter can be watched and then the sudden

ejection of urine can be seen, accompanied by a disappearance of the swelling. If there is any marked difference between the two sides that in itself is evidence of some deviation from normal in one kidney or the other. If the ejections are increased in number on one side that side is the site either of much local irritation or that kidney is the more active functionally. When the increased frequency of the ejections is caused by local irritation they are of short duration and small in quantity, but when caused by increased functional activity the ejections are prolonged and the amount of urine is large. Sometimes the flow is so diminished in amount that it is imperceptible and the mistake may be made of thinking that no flow occurs. Sometimes even a stone may be seen causing a bulging of the orifice of the ureter, or it may form a prominence immediately above the opening. Pus or blood issuing from one ureter will often afford help in diagnosis and will outweigh greatly many symptoms.

The other diagnostic aid which has done so much to assist in the recognition of lesions of the kidney and especially stone in the kidney is the radiogram. The first attempts at photographing renal calculi by the x rays were partial failures and only occasionally could evidence of stones be seen, but as the tubes employed improved better and better results were obtained until at the present time skilled operators succeed in obtaining shadows in nearly every case of renal stone. The bowels must be empty, as fæcal masses can easily obscure the stones, and it is well to examine carefully with the screen so as to find the position in which the best shadow is seen. With one position the stone may be obscured by a rib and the shadow from the rib may mask the shadow of the stone, while in another position the stone may be clearly seen. It must not be forgotten that different stones vary greatly in the density of the shadows which they cast. A stone composed of oxalate of calcium will give a definite image and a calculus of uric acid may give hardly any shadow at all; the stones containing phosphates throw shadows intermediate in density between the two others. Rarely indeed is a stone found in a kidney when the efforts of a skilled radiographer have failed to find evidence of its presence. Armed with these modern additions to his diagnostic forces the surgeon can act with certainty where not long ago he was compelled to rely greatly on an exploratory incision. The symptoms may point unmistakeably to one kidney, yet if the cystoscopic evidence and the radiogram point clearly to the other kidney the surgeon will not hesitate to attack the kidney which, so far as the symptoms are concerned, appears to be healthy. Dr. NEWMAN relates a case where the pain was absolutely confined to one side, but the cystoscope showed that the blood was coming from the opposite side and with this the radiogram agreed; the operation performed on the side indicated by the cystoscope and the radiogram laid bare a stone which was removed with a cessation of the pain on the opposite side. It has been denied that renal pain can be transferred in this way and some eminent authorities maintain that in cases where there is apparently a transference of the pain a calculus is really present on both sides, one kidney showing the symptoms and the other giving rise to the physical signs. The relief from pain after operation is then attributed to the rest in bed and the consequent fixation of the stone. We will not attempt to decide this difficult question but we share in the belief in the value of the evidence obtainable from radiograms and cystoscopy.

We have sketched the general scheme of Dr. NEWMAN'S article and to the article itself we refer the reader for the details. One great lesson can be drawn from it—that a medical practitioner should not rest content with such vague diagnoses as cystitis or lumbago in cases which do not respond to the ordinary treatment. The possibility of some renal condition such as calculus should be entertained and the aids which the advance of science within recent years has put into our hands should be utilised in order to arrive at certainty of diagnosis which is the most essential factor in accurate prognosis and successful treatment.

Sleeping Sickness.

THOUGH sleeping sickness has been known for about a century it is only within the last few years that the symptoms which gave the name to the disease have been recognised as the terminal stage of a trypanosomic infection. Following upon the opening up of the interior of Africa to trade there has been a remarkable extension of the malady to fresh areas which have thus been threatened with depopulation. This fact has naturally caused considerable alarm among the European nations which have possessions in Africa, and as a result an international conference was held early in 1908 in London and was attended by delegates representing England, France, Germany, Italy, Spain, Portugal, and the Congo Free State, with a view to formulate combined measures against the spread of sleeping sickness. Unfortunately, the conference broke up without arriving at an agreement owing, it is said, to the objection of the representatives of France and Italy to make London the headquarters of the International Sleeping Sickness Bureau. Later in the year, however, England and Germany signed an agreement by which they undertook to carry out certain measures for controlling the spread of the infection in their respective African territories and to keep each other informed of any advances in knowledge of the disease obtained by field work or laboratory investigations. In May last a Sleeping Sickness Bureau was established in London, comprising representatives of the Foreign and Colonial Offices and of the Royal Society, to collect and to distribute information respecting the disease. This bureau has already issued two valuable reports, modestly termed "bulletins," edited by Dr. A. W. G. BAGSHAWE, the director of the bureau. In the first of these bulletins the chemo-therapy of trypanosomiasis has been dealt with in an exhaustive fashion. From it we learn that practically all patients suffering from sleeping sickness are now treated by atoxyl or some chemically allied substance, either alone or in combination with other drugs. The effect of the administration of atoxyl is to banish the trypanosomes from the blood and the glands. The action of atoxyl is said to be due to its undergoing changes, or a process of reduction, in the body and the formation of trypanotoxyl which kills the parasites. Unfortunately, all the parasites are not killed, for usually a few remain attenuated in virulence and acquire tolerance of

the drug; they are said to take refuge in the bone marrow where after a time, notwithstanding the continued use of atoxyl, they recover virulence, multiply, and again invade the body of the patient, causing a recurrence of the symptoms of the disease. So long as resistant trypanosomes are left in the system the disease cannot be cured. It is therefore necessary to follow up the atoxyl treatment by the use of other trypanocidal drugs, among which may be mentioned mercury and antimony. From Dr. BAGSHAWE'S bulletin we learn that experiments to this end are being carried out; meanwhile, he urges that a course of treatment with one remedy or set of remedies should not be prolonged, but before the trypanosomes become indifferent or resistant should give place to a similar course with another set of trypanocidal drugs.

In the second bulletin the diagnosis of human trypanosomiasis is dealt with and the exploration of the body fluids, the blood, the gland juice, and the cerebro-spinal fluid, to find the parasite, is discussed in detail. The important subject of gland palpation is also considered. Some symptoms of human trypanosomiasis are specially mentioned, including loss of sexual power, certain eye affections, nervous symptoms, skin affections, and deep hyperæsthesia. The question of transmission of trypanosoma gambiense is next dealt with and as to whether other species of glossina besides palpalis can transmit the disease and whether stomoxys, tabanus, and so on, or mosquitoes can also carry the infection. Dr. BAGSHAWE arrives at the conclusion that though in rare instances perhaps stomoxys or even mosquitoes may play such a part, for all practical purposes our attention and energies should be confined to the glossina palpalis. The transmission of trypanosomias by sexual coitus is next considered but more satisfactory evidence than that brought forward by KOCH is required to enable a proper opinion to be formed. The possibility of infection through the mucous membrane of the digestive tract is dismissed in a few words. Appended to the bulletin is a short digest of recent work on the treatment of trypanosomiasis with various drugs or combinations of drugs. A valuable bibliography is also appended giving for the two bulletins more than 200 references to works on sleeping sickness.

The London bureau has also issued recently a quarterly report on "The Progress of Segregation Camps and the Medical Treatment of Sleeping Sickness in Uganda, by Captain A. C. H. GRAY, R.A.M.C., medical officer in charge of the sleeping sickness extended investigation," with an introduction by Dr. A. D. P. HODGES, senior medical officer, Uganda, in which the opinion is expressed that the results from the treatment by atoxyl followed by the administration of mercury are at present promising and may prove to be more lasting than those from atoxyl alone. Of 1712 patients dealt with during the quarter in question 973 were treated by atoxyl alone, 708 by atoxyl and mercury, 13 by soamin (a substance which differs from atoxyl only in the amount of water which it contains), 11 by soamin and mercury, seven by antimony, and six old cases were treated with antimony subsequently to a course of atoxyl. The administration of atoxyl was occasionally attended by the development of symptoms of poisoning due, it was believed, to the inferior quality of the drug supplied. It is thought that soamin may ultimately be substituted for atoxyl as its action is precisely the same, though it costs only a third of the price of the latter. In some of the camps the virulence of sleeping sickness appeared to be increased owing to a local famine which prevailed in the district. A lurid light is thrown upon the difficulties and dangers of the segregation camps by a reference in the report to the Usoga camp, where "hyænas have accounted for the death of several patients, these animals having been most persistent in their attacks on the huts, though these are each provided with a thorn zareba."

Annotations.

"Ne quid nimis."

THE SICULO-CALABRIAN CATACLYSM.

ITALY is still, what Byron found her, "the Niobe of nations," ever lamenting lost children torn from her by cruel fate. Of these none were more lovely than Messina and Reggio, the rival beauties of their respective seaboards, and these also, within sight of each other, on the same morning, at the same hour, have ceased to be.

> "Cuncta jacent flammis et tristi mersa favillâ,
> Nec Superi vellent hoc licuisse sibi."

Martial's magnificent *oraison funèbre* on Pompeii may be pronounced on both, and now their mourning mother must find what comfort she can in relieving those of their families who have escaped with their lives and in taking what precautions she may to protect the surviving sisters from a similar fate. As to the first of these duties, nothing can be more admirable than her efforts to discharge it. With a "unity" even more conspicuous than that for which she fought for literally, she is sinking all divergences of class or creed or party in the work of rescue, relief, and rehabilitation. Vatican and Quirinal have joined hands in the common endeavour, and every resource that the country can command is pressed into the immediate service. Nor will that endeavour and that resource prove adequate. To find shelter for thousands hurled out of bed under a sky of midwinter, to clothe them, to feed them, to prolong this work for an indefinite period, is of itself a well-nigh hopeless task; but when a large proportion of these are suffering from bodily injury—nearly "every lesion known to surgery" being represented in this *ensemble*—the task seems more than desperate. Fortunately, the friendship, nay, the affection, which Italy has never failed to inspire has come to her aid, and the outlying world, again ignoring all distinctions of race or religion, has nobly coöperated with her in the work. Indeed, the situation had barely become known when the British and Russian steamships cruising in those waters lent themselves to picking up and transporting to neighbouring seaports the fugitives from the wrecked cities. "Truly sublime," writes an Italian eye-witness of the efforts of those two nationalities; whilst others, as they had opportunity, have not failed to exert themselves with equal energy and effect. Material assistance of every kind, from money to medicines, from food and clothing to creature comforts, keeps pouring in from all the centres of civilisation in the two hemispheres; assistance rendered with ever greater efficacy as the "overlapping" and other incidents of inevitable haste and friction become minimised by experience. As to Italy's second duty, that of preventing, so far as is humanly possible, the recurrence of such catastrophes, she is being reminded, on authority which she cannot ignore, of what she has hitherto neglected to do. Seismology is not indeed so far perfected as

to give timely warning of a brewing "telluric storm"; nor even if it were could it accurately forecast the incidence and force of the visitation. But profiting by the experience of an even more seismically haunted region than her own—that of Japan—Italy has now in real earnest to begin what so recently as 1905 (the year of the last Calabrian earthquake) she was found to have neglected—the founding and construction of habitable quarters under conditions making these proof against seismic shock. In an admirable letter addressed to one of the most influential of Italian journals, the Milanese *Corriere della Sera*, the Senator Pasquale Villari rehearses the experience and the practice of Japan in meeting "telluric storms" and in minimising their danger, showing, moreover, that, even antecedently to Japan, Italy herself, through such sagacious nature-students as the Padre Bertelli, fully realised and worked out the means of effecting the same life-saving end. No time should be lost in initiating such reconstruction on the earthquake-haunted Italian littoral if that "earthly paradise" is not to be deserted by its panic-stricken inhabitants and Italy to undergo, by emigration, a still further depletion of her best life-blood. Her Parliament will meet in immediate session to consider and to provide for the whole situation into which the Siculo-Calabrian region has been thrown, and it is reassuring to know that its deliberations will be inspired by other counsels than those of despair or even of "raw haste, half-sister to delay."

AMERICAN MEAT FOR THE ARMY.

THE New York correspondent of the *Standard* recently wrote commenting upon the carefulness displayed in the selection of meat designed for use in the British army. It appears that Mr. Thomas Erskine, our Acting Consul-General in Chicago, himself spends half of every working day at the manufactory of Messrs. Libby, McNeill, and Libby, to whom has been intrusted a British Army meat contract. Mr. Erskine, it is said, supervises personally every piece of meat in the process of packing if it is intended as food for the British army and only that which has had his approval is prepared for shipment. It goes without saying that it is a matter of the first importance that meat supplied to the army should be of good quality. If our representative in Chicago is an expert and if such employment as meat inspection falls within the scope of his duties it is well that he should devote a good portion of his time to insuring a supply of sound and nourishing meat for our army. It seems, however, that while the point as to whether the meat chosen and packed in Chicago for the British soldier is up to the proper standard is a vital one, it is at least of equal importance to know why it should be considered necessary to send to America for the meat for our army. Much of the meat dispatched to this country is not tinned but cut up and packed in boxes, being chilled or frozen or treated with chemicals to prevent decomposition during transportation. Views in regard to the wholesomeness of meat which has been chilled or frozen vary, but medical opinion, at any rate, is firm as to the superior nutritive qualities of meat which has undergone no process to restrain decay; this is to say, that fresh meat is at all times to be preferred, from the standpoint of health, to meat which has been subjected to preservative measures. Motives of economy may have swayed the army authorities to give the contract for supplying meat to the British army to a Chicago firm, for it is more or less certain that English-grown meat would cost more than the American product. It is certainly necessary that the physical needs of the soldier should be strictly attended to, which means that he should be fed upon those substances best calculated to impart vigour and energy to the frame. Furthermore, though this is neither a medical argument nor a political reflection, the English farmer is worthy of some consideration. A country practitioner, writing to us in this strain, says: "Seasons and prices have been against the farmer for a long period of years. He needs encouragement, and it is distinctly discouraging to him to learn that those responsible for feeding the army prefer to buy American meat of confessedly inferior quality rather than to obtain at a somewhat higher cost the sound home-grown beef and mutton." We are quite in accordance with our correspondent in wishing that everyone should have only the best of things to eat and that whoever provides it should be properly paid for it but we do not see how the economic difficulties are to be surmounted. Considering now not the army but the country at large it is satisfactory to know that every precaution is to be taken in regard to the importation of foreign meat.

RATS AND THEIR ANIMAL PARASITES.[1]

WE have before us a reprint of the above-named paper and it is of singular interest. Rats, like other nuisances, are always with us, and there seems to be no other reason for their existence than the one put forward for the existence of plague by the ingenious William Boghurst who in his "Loimographia" speaks thus: "If God had not made venomous and hurtfull Creatures as well as others, man would have wanted objects whereon to exercise his reason and prudence; this quality which renders him soe like his Maker would have been invisible and unseen, yea idle and useless." Mr. Shipley commences his paper with an account of the two commonest kinds of rats—namely, Mus rattus, or the old English black rat, now almost extinct, and Mus decumanus, the common brown rat. The latter, says Mr. Shipley, only arrived in England about the accession of George II., thus doing away with the tradition beloved by Waterton that it came over with Dutch William. Be that as it may, however, it thrives with great vigour and is extremely cunning, powerful, and fierce. It can and does live on all kinds of foods, and is an excellent parent. Rats cause enormous damage to ricks, rabbits, small birds, fowls, and pigeons, while in addition they are carriers of disease. To say nothing of plague, with which we in these latitudes are but slightly troubled, the rat is the primary host of Trichinella spiralis. It also conveys equine influenza from one stable to another and also "foot and mouth disease." No wonder, then, that, to quote Mr. Shipley, "the destruction of the rat is being urged on all hands." He reminded his hearers that if rats do largely diminish in numbers there may be a considerable upset of the balance of power of the almost hidden fauna which surround us on all sides. It will be news to most people that the official rat-catcher to His Britannic Majesty still exists. He used to have a uniform but this item has apparently been abolished. Mr. Shipley pleads for its revival and on our part we echo his plea. If expense stands in the way what more appropriate way of spending money raised by the "robbing of hen roosts," which we gather is the Chancellor of the Exchequer's euphemism for fresh taxation, than to spend it on adorning the enemy of the great robber of hen roosts? Henry Mayhew, in the third volume of his valuable work, "London Labour and the London Poor," circa 1860, gives an interesting account of Jack Black, "the Queen's Rat-catcher," but whether this gentleman was really official or only self-styled we do not know. The remainder of Mr. Shipley's pamphlet is occupied by a list of animal parasites of the rat, a host which seems to be popular among parasites, for to begin with it harbours 14 different kinds of fleas, to

[1] A paper read before the Association of Economic Biologists at Edinburgh, July 28th, 1908, by A. E. Shipley, F.R.S.

say nothing of lice, ticks, and a large selection of entozoa. The parasitologist may indeed say, as was said of Sidrophel, that he knows

> "How many diff'rent Species
> Of Maggots breed in rotten cheeses";

but a perusal of Mr. Shipley's *catena* of authorities and of parasites makes it all the more plain that the rat is a being the diminution, if not extermination, of which is much to be desired.

ANTIVIVISECTION.

Professor Charles Richet, who holds the chair of Physiology in the University of Paris, has published in English a book under the title of "The Pros and Cons of Vivisection,"[1] with an introduction by Professor W. D. Halliburton of King's College. For some years after the antivivisectionist societies began their propaganda in this country, and so long as they only offended against the decencies of debate, they were not considered worthy of serious answer, but when it became apparent that they were prepared to set truth systematically at defiance in their efforts to poison the public mind against the great hospitals and the advancement of healing it was felt that medicine must vindicate her position. We think that Professor Richet can hardly realise the full recklessness of this sect's methods when he says of them in the course of his defence of his science, "Antivivisectionists have rendered real service to general morality by calling attention to the excesses committed by a few vivisectionists in the past. ..... Their preaching has, on the whole, had a happy result." General morality must lose more than it can gain from untruthfulness and bigotry, and the unhappy fact that cruelties were perpetrated in the past in the name of science is no excuse for the stories so often repeated that those same cruelties are taking place in England at the present day. It was to defend the purity and nobility of modern experimental medicine that Mr. Stephen Paget published his book "Experiments on Animals" in 1900, a work which has placed science in his debt, as also has his energy in the foundation and conduct of the Research Defence Society. Our readers are aware of what striking support the society has gained by the publication of the evidence given before the present Royal Commission on Vivisection, and now the spread of truth should receive a further impetus from the authoritative little book from which we have quoted words showing its author to be possessed of almost too forgiving a spirit. We hope that his eloquent pages may at least meet the eyes of some who profess love for animals, although, as Professor Halliburton writes, "the happiness of the teeming millions of India does not come home to them. The comfort of our soldiers and sailors on the Mediterranean stations is of little account. ..... They bestow their sympathies upon the few victims of the vivisector's knife or syringe; they have none left for the larger number of victims which would have suffered if the few had not been sacrificed." The book before us is written with such moderation that it might almost convince a declared antivivisectionist; we are sure it will convince any reasonable person who may read it, having hitherto only heard the stock "arguments" of Mr. Coleridge's followers. Professor Richet urges that demonstrations of experimental physiology should only be made on decapitated animals or on anæsthetised animals which should be killed before they recover consciousness, limitations which are observed in the physiological schools of this country. The writer proceeds to show the illogical position of antivivisectionist meat-eaters and leather-wearers. In this respect his translator, a lady, who has done her work admirably as a whole, has surely missed the right expression when she says that the ox is *beaten* to death for food, if, as we suppose, *abattu* was the author's word. In the subject of anæsthesia the claims of chloralose which Professor Richet discovered in 1894 are naturally advanced. The outstanding gifts of research to medicine are mentioned, very few figures being introduced into the argument save those which go to establish the fact that 1,350,000 children's lives have been saved in France in 15 years by the use of anti-diphtheritic serum. In this chapter surely the author is justified of his indignant cry, "This so-called humanity of antivivisectionists seems to me the antithesis of humanity." The subject of the sensibility of animals and their memory of pain as compared with that of human beings is considered with authority, and the chapter headed "Morality and Vivisection," which is written with truly French enthusiasm, carries a memorable lesson. We should like to know the authority for the statement that a century ago "aurochs, elks, chamois, and bears were widely diffused over Europe." But it is only on such minor points that questions need be raised, and the book should prove a valuable weapon to all defenders of progressive medicine. In considering the statutory regulation of vivisection Professor Richet would confine its practice to proper laboratories but in them leave its control to the unhampered moral responsibility of the professor and his staff. No other nation but Great Britain has assumed state control over vivisection save by the general laws for the prevention of cruelty to animals, but during the past year the question has been raised in the New York State Legislature by an antivivisection society which has promoted Bills to check or to control the use of experimental methods of research. We have before us the proceedings of the last March session of the New York Medico-Legal Society (as published in its journal) at which these proposals were answered in papers by three prominent members. Dr. R. W. Shufeldt spoke at length on Some of Humanity's Debts to Vivisection, in which he rehearsed the chief medical discoveries which have resulted from its practice. Mr. Clark Bell, LL.D., President of the society, dealt with Animal Experimentation in Scientific Research, quoting several eminent and humane English men of science to prove how legislation hampers legitimate research, and Dr. J. Mount Bleyer spoke on the same lines. In certain American schools it is usual to repeat many physiological experiments for the instruction of students who could master the resulting lessons equally well from diagrams and explanations and who can only see very little of the experiments themselves. We should welcome the limitation of such educational experiments to a minimum, as is done in this country. Professor Richet would abolish them altogether. At the same time, it must be remembered that they are always painless to the animal which is killed before it recovers from the anæsthetic. We take this opportunity of pointing out that when an anæsthetic has been given to an animal on which any experiment is performed it is always desirable for its author to mention the fact in any account of the experiment which he may publish. If no mention is made of an anæsthetic an antivivisectionist will generally be found to deny that one was given.

[1] The Pros and Cons of Vivisection. By Professor Charles Richet. London: Duckworth and Co. 1908. Pp. xxvii.-136. Price 2s. 6d. net.

THE PHYSIOLOGICAL SIGNIFICANCE OF THE FIRST EXAMINATION.

THE *Medical Record* in its issue of Dec. 12th, 1908, contained an interesting article by Dr. Stephen Smith of New York, who says that in these later days there is a more hopeful outlook for the feeble-minded, insane, and criminal classes. We are, he points out, in a better position to cure, to develop, and to reform them than in the old days of segregation. He suggests that the service of any such institution should

be organised with every possible effort to individualise the different cases in treatment and with officers willing to take a great interest in each one of the patients. Every inmate should be the object of especial study and record. The first examination should be exhaustive and should reveal all the faults of nutrition and assimilation. The attendants should be specially educated along the lines connected with their work. The supervising officers should possess the highest possible qualifications and devote all their skill and energy to the personal supervision of instruction of attendants and teachers. These admirable counsels are already to some extent followed in our asylums, but the overcrowding of these establishments and the difficulty of obtaining subsidies for anything but the routine work throw serious obstacles in the way of the evolution of psychological medicine which Dr. Smith advocates.

THE NOTIFICATION OF PAUPER CASES OF PULMONARY TUBERCULOSIS.

By the provisions of the Public Health (Tuberculosis) Regulations, 1908, any person who is diagnosed as suffering from pulmonary tuberculosis and who is now in receipt of, or compelled for various reasons to seek, any form of Poor-law medical relief has to be notified to the medical officer of health of the district. At first sight it would seem that this is one more burden which the unfortunate pauper is called upon to bear, but the Local Government Board, with statesmanlike foresight, has wisely endeavoured to render this apparent additional disqualification as light as possible by determining that nothing in the regulations shall authorise the medical officer of health, directly or indirectly, to put in force with respect to any poor person in relation to whom a notification has been received any enactment which renders the poor person, or a person in charge of the poor person, liable to a penalty or subjects him "to any restriction, prohibition, or disability affecting himself or his employment, occupation, means of livelihood, or residence on the ground of his suffering from pulmonary tuberculosis." This proviso is, we gather, much on the same lines as that which is contained in the local Act with reference to the notification of pulmonary tuberculosis in Sheffield, and it is one which we regard as really essential. The next section of the article which contains this provision confers upon a local authority, subject, of course, to the foregoing proviso, power to take all such measures or to do all such things as are authorised in any case of infectious disease, by any enactment relating to the public health, and as have reference to the destruction and disinfection of infected articles or the cleansing or disinfecting of premises. Certain other powers as regards affording assistance to persons suffering from this disease are also conferred. The Local Government Board, in framing these regulations, has evidently foreseen the dangers which may arise from their employment or abuse and it has done a great deal to reduce such dangers to a minimum. Nevertheless, we cannot help thinking that a somewhat dangerous weapon is being placed unreservedly in the hands of local authorities who may, we are afraid, sometimes find it difficult to act so as not to draw public attention to the fact that the unfortunate person notified is suffering from pulmonary tuberculosis, and it is for this reason that we should have felt more secure had greater control been left in the hands of the Local Government Board. It is a serious circumstance, at least for the person suffering from pulmonary tuberculosis, that employers of all forms of labour are becoming in an increasing degree unwilling to take back into their employ persons who have been inmates of a sanatorium, even although such inmates may be certified to be quite recovered and have no expectoration. It is also a significant fact, as was pointed out recently in the medical section of our Annus Medicus,[1] that it is not an uncommon thing in seaside health resorts for clauses to be inserted in house leases providing that such houses shall not be used for the treatment of persons suffering from tuberculosis. From disqualifications such as these it is not a very far cry for employers to ask every applicant for employment whether he or she has ever been notified as suffering from pulmonary tuberculosis or has been an inmate of a sanatorium. The seriousness of such a development must be sufficiently apparent to all persons possessing a statesmanlike mind, and it is for this reason that we find ourselves largely in agreement with the views expressed in the leading article in the *Times* of Jan. 2nd[2] and that we venture to hope that great caution will be exercised by all medical officers of health in the administration of these wisely conceived regulations. It would be a disaster, economically and socially, were persons suffering from pulmonary tuberculosis to be rendered actually unemployable while capable of work which would support their families for many years to come, and if by this means the ranks of the unemployed received a very substantial and largely permanent addition. It rests with our medical officers of health to protect us against this calamity.

THE ETIOLOGY OF CARCINOMA CERVICIS.

AT a meeting of the Harveian Society of London on Dec. 10th last Dr. Victor Bonney read a paper entitled "The Bearings of Pathology on the Prevention, Diagnosis, and Treatment of Carcinoma of the Cervix." Out of 1876 cases investigated at the Middlesex Hospital Cancer Research Laboratories no less than 1796 had been married; of these, only 9 per cent. had not borne children. Clinically, a case in an undoubted virgin was almost unknown. The reason of this remarkable relationship between the disease and sexual life was shown by pathology to be due to the fact that every case of carcinoma of the cervix appeared to be founded on a chronic cervicitis. Dr. Bonney did not intend to convey any belief that carcinoma was *caused* by chronic inflammatory processes; on the contrary, there was every reason to suppose that some additional factor was required, but as to the constant *association* of antecedent inflammatory change with the disease there was no doubt. In this respect carcinoma of the cervix was entirely comparable with the common types of carcinoma occurring elsewhere. The pathology of the chronic cervicitis antecedent to carcinoma was then described and illustrated by lantern slides. The relationship between malignant disease of the cervix, marriage, and child-bearing was highly important from the social standpoint; it was, in fact, a fearful penalty on the natural function of women. Prevention of the disease was to be sought, he thought, in the light of these facts by greater attention to the hygiene of the cervix and vagina in married life. Vaginal douching as a routine practice in married women had doubtless much to recommend it. Greater attention to the repair of cervical laceration after labour was probably desirable, though its practice was surrounded with difficulties and objections. He strongly believed in the routine use of the vaginal douche during the puerperium. The importance of impressing on married women suffering from leucorrhœa the propriety of consulting a medical man was also great. There could be little doubt, he thought, that carcinoma of the cervix was much commoner amongst the lower classes, as they were subject to less medical supervision. Turning to diagnosis, the most important point was to instruct the public that the normal menopause was *not* associated with irregular bleeding; gratifying steps in this direction had already been taken in Germany

[1] THE LANCET, Dec. 26th, 1908, p. 1885.
[2] Professor Koch on Tuberculosis.

and to a less extent in this country but much remained to be done. From the medical man's standpoint the absolute necessity of immediate examination was manifest. Very early cases were unfortunately not often seen and their signs were equivocal. All such cases should immediately be submitted to microscopical examination. In the later stages the disease was usually obvious but there was a diffuse infiltrating form with few or no "speculum" signs which should be remembered. Further, in senile cases with atrophy of the vaginal cervix advanced growth might occur without there being much to see or to feel. Turning to surgical treatment the difficulties were chiefly mechanical. From the pathological point of view the surgery of the disease was quite hopeful. No less than 55 per cent. of persons dying from carcinoma of the cervix exhibited no metastatic growths whatever, whilst in the case of the breast only 6·5 per cent. so escaped. The track of lymphatic permeation was very simple, straight out through the parametrium to the external iliac glands. The bladder and rectum were involved by the much slower process of infiltration. The operation popularised by Wertheim satisfied the demands of pathology and was destined to become the only operation performed for the cure of the disease. Improved technique had greatly reduced its mortality. It was especially suitable for early cases. Dr. Bonney and Dr. Comyns Berkeley had now performed 20 of these operations mostly in advanced cases, with four deaths. The technique of the operation was illustrated by lantern slides and specimens were exhibited.

DECEMBER AT HOME AND ABROAD.

IN spite of the severe cold after Christmas the average temperature for December was rather above the normal in most parts of this country, the first three weeks or so having brought an autumnal rather than a winter temperature, and the warmth at the resorts on the extreme south-west coast of these islands compares very favourably with that experienced at some of the places in the south of Europe. As usual in winter, Scilly was the mildest spot of the home stations and scarcely felt the effects of the cold snap at all. Its mean night temperature was higher than that at Naples and Palermo and just equal to that at Palma and Biarritz, while the only places with warmer nights were Malta, Algiers, and Lisbon. But the warmth of the days at Scilly was even more striking, its average afternoon having the same temperature as prevailed at Nice, Genoa, and Rome. As will be seen from their extremely low minima, the inland capitals of Europe felt the cold spell in a much greater degree than did this country. At Paris the mean temperature for the month was more than 5° lower than it was in London, while at Brussels it was about 8°, and at Berlin more than 10°, lower. Algiers, the most southern place represented in the table below, was the warmest spot; its mean warmth both during the day and night was almost identical with that of an average September at Brighton and the south coast of England generally. At Naples the temperature means for the month were about equal to those ordinarily experienced in London and the southern counties of England during October. During the greater part of the month the temperature was more equable than is usual in December both at home and abroad, the mean diurnal range being only 8° or less in many places, and at very few of the stations more than 10°. Rain was rather more frequent and abundant than usual in the south-west of this country and on various shores of the Mediterranean, as well as at Biarritz, and the south of Europe, considered generally, was often dull and stormy, although there were many more sunny intervals than in this country. It may be mentioned that in London (Westminster) there were only 13 hours of bright sunshine—just the average for December—while the sunniest spots on the south coast of England had about 50 hours. In Westminster there were no less than 21 days with no sunshine.

—	Highest temperature.	Lowest temperature.	Mean maximum temperature.	Mean minimum temperature.	Mean temperature for month.	Mean daily range of temperature.	Number of days with rain.	Total fall in month.
	°	°	°	°	°	°	*	Inches.
Scilly	54	40	52	46	49·0	6	20	5·24
Jersey	51	27	49	41	44·8	8	17	4·56
Torquay	58	28	50	42	46·1	8	15	3·64
Sandown, Isle of Wight	57	20	49	39	44·0	10	17	4·61
Weymouth	56	19	49	41	44·7	8	14	3·09
Bournemouth ...	55	16	47	37	42·1	10	15	3·19
Brighton	53	18	44	38	41·3	6	11	3·33
Bath	51	10	47	36	41·3	11	16	2·57
Buxton	46	4	37	31	34·3	6	17	3·27
Harrogate	48	14	41	32	36·5	9	14	1·46
Manchester	53	21	43	37	40·2	6	14	2·86
Nottingham ...	51	9	43	34	38·5	9	10	1·15
London	54	18	45	37	41·1	8	13	1·64
Paris	53	7	41	31	36·0	10	11	1·45
Brussels	52	5	36	30	33·0	6	16	1·73
Berlin	46	3	34	27	30·7	7	6	0·44
Nice	57	30	52	40	45·8	12	7	1·98
Genoa	61	36	52	45	48·3	7	8	4·80
Florence	54	27	47	37	42·4	10	9	3·82
Rome	57	30	52	41	46·4	11	10	2·60
Naples	58	31	56	44	49·8	12	14	8·75
Palermo	64	36	60	45	52·7	15	17	5·94
Malta	66	34	60	50	54·8	10	19	9·33
Algiers	81	46	65	52	58·4	13	15	5·15
Palma, Majorca ...	68	41	61	46	53·4	15	15	3·59
Lisbon	63	41	58	50	54·1	8	12	1·80
Biarritz	68	32	56	46	50·8	10	18	8·07

* A day with at least 0·04 in.

THE ENUMERATION OF THE LEUCOCYTES.

THE quantitative investigation of the blood in conditions of anæmia, both primary and secondary, has yielded results of the utmost value in regard to diagnosis and treatment, and has placed the pathology of these conditions on an established scientific basis. In order to interpret the meaning of a blood count, however, it is essential to make a differential count as well as an absolute count, and for this purpose a scheme of classification of the corpuscles has to be adopted, that of Ehrlich or some modification of it being usually employed. In counting the red corpuscles the various forms of microcytes, macrocytes, poikilocytes, polychromatophilic cells, cells with basophile granules and nucleated forms, including normoblasts and megaloblasts, are separated. In the enumeration of the white corpuscles the differential count is usually divided into the neutrophiles or polymorphonuclears, the eosinophiles, the basophiles, the lymphocytes, large and small, and the transitional forms. Dr. Joseph Arneth of Würzburg is of opinion that further refinement is necessary in regard to the enumeration of the white corpuscles such as is at present done in the case of the red corpuscles. He regards the various modifications of the red corpuscles which have just been enumerated as the result of changes in the bone marrow the site of their production, and endeavours to subdivide the forms of the white corpuscles according to the character of their nuclei, thus obtaining a qualitative "blood picture" which he regards as of the utmost importance. He has devoted many years to the investigation of the variations in the "blood picture" in various diseases and he states that in a disease, such as

pulmonary tuberculosis, in which the ordinary leucocyte and differential count may be apparently normal a qualitative examination on the lines suggested by himself may reveal profound alterations. He has published a series of monographs on this subject and also a general review[1] of the diagnosis and treatment of the blood diseases. He has so far only elaborated his classification of the leucocytes in regard to the neutrophiles and the eosinophiles, but he believes that similar methods can be applied to the lymphocytes. He divides the neutrophiles into five subclasses according to the nature and form of their nuclei but each one of these subclasses is also subdivided. The manner of the classification is according to the number of nuclei: Class I., containing only one nucleus; Class II., two; Class III., three; Class IV., four; and Class V., five or more. The subdivisions of these classes depend upon the form of the nuclei whether rounded or coiled. The normal neutrophile "blood picture" is given as Class I., 5 per cent.; Class II., 35 per cent.; Class III., 41 per cent; Class IV., 17 per cent.; Class V., 2 per cent. The simplest forms of Class I. are neutrophile myelocytes, while Class V. represents the most complex and evolved forms. In disease the "blood picture" may be deflected to the left—i.e., towards the less evolved forms; or to the right—i.e., towards the more evolved forms, since the results are expressed from I. to V. in a direction from left to right. Similar statements are made in regard to the eosinophiles, except that only three classes are differentiated. Dr. Arneth gives interesting examples in his book and he affirms that qualitative examinations of this kind are of greater value than quantitative observations. The suggestion is one of considerable interest and may prove to be of great practical importance in the classification of the anæmias, but to obtain counts of the kind suggested would require considerable experience and a great expenditure of time, factors which are likely to prevent the method from becoming generally adopted. Moreover, it is obvious that great care would be necessary to avoid altering the shape of the nucleus in the course of preparation of the specimen, and in amœboid cells like the neutrophiles it is possible that the nuclear picture may be an evanescent one.

[1] Diagnose und Therapie der Anämien (Diagnosis and Treatment of the Anæmias). Würzburg: A. Stuber. 1907.

THE HOUSE RENTS OF THE POOR.

ON Dec. 18th last Dr. F. J. Waldo held an inquest in the Southwark coroner's court upon the infant child of a labourer living in St. Stephen's-place, Tabard-street, Borough, a district where poverty presses very hardly. In the course of the inquest it came to light that the child's parents earned jointly 14*s.* 6*d.* a week, out of which they paid 9*s.* 4*d.* for the rent of two rooms. The coroner naturally expressed his surprise at this disproportion in the family budget and was informed that very poor people who have no "home"—that is to say, who have parted with their furniture—cannot find accommodation in moderately priced rooms but are at the mercy of tenement landlords who take houses and equip their rooms with the bare necessaries of life and are able to charge exorbitant weekly rents for such "furnished apartments." In this case man and wife and five children slept in one bed as they could not afford cot or cradle. A neighbouring married woman whose husband was out of work gave evidence that she paid 6*s.* a week for one room in her house, whilst another tenant paid 5*s.* 6*d.* for a second. Dr. Denis McCarthy said that such "furnished" houses were under the tenement laws but that there was very little evidence of their supervision. He attributed much of the drinking amongst poor people to the wretchedness of their home surroundings. No one who reflects upon these facts can fail to see the terrible vicious circle of poverty, drink, vice, and disease which such miserable and extortionate accommodation must set up amongst the labourers who have to put up with it. In this matter the middle classes are much better off; a man earning £400 a year and paying £50, or one-eighth of his income, for his house rent gets infinitely greater value for his money than a labourer paying his landlord one-fifth of his weekly wage. When, as in the present case he pays in rent two-thirds of what he earns the thing becomes a monstrous injustice from which he should be protected by law. The possibility of such a thing is a public scandal in a civilised State. Dr. Waldo stated at the inquest that when he ceased to be medical officer of health of Southwark he suggested that certain areas of that district should be dealt with under the Housing of the Working Classes Act. Speaking from the standpoint of the public health we agree with his remark that the whole question is in the most pressing need of solution. We are opinion that amongst an increasing number of social problems none is more difficult or urgent than that of the housing of the poor, both in town and country.

POISONING FROM ANILINE BLACK ON SHOES.

In the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of Dec. 20th, 1908, Dr. C. Mongour has reported a case of aniline poisoning from an unusual though not unprecedented cause, the application of an aniline dye to shoes. On Oct. 16th he was called at 9.30 P.M. to a girl aged seven years. The face was pallid, the eyes were sunken, the nostrils were pinched, and there was an expression of anguish. The lips were violaceous, almost black, the nails were of the same colour, and the general surface was cold. There was constant nausea, accompanied by some bilious vomiting and a sensation of epigastric constriction. There were tenesmus with constant desire to go to stool but no evacuations and strangury. The pulse was 144 and the respirations were 30. There was slight fronto-occipital headache with a tendency to drowsiness. These symptoms had developed as follows. In the morning the child went to school as usual and returned at 11 A.M. when her mother noticed a slightly bluish colour of the lips and nails to which she did not attach importance. The child would not take lunch and returned to school at 1 P.M. Towards 2 P.M. nausea with some bilious vomiting began. Then the other symptoms followed in this order: headache, dyspnœa, tachycardia, and rectal and vesical tenesmus. The violaceous colour of the lips and nails increased and she became sleepy. At 6 P.M. she was taken home. The symptoms reached a maximum at 8.30 P.M. Dr. Mongour was puzzled as to the diagnosis. The symptoms were those of a subacute intoxication. Inquiry eliminated alimentary intoxication. Was the condition cholera nostras? In the absence of any evacuations and of abdominal pain this was very improbable. Was the child suffering acute cardiac failure ("*crise d'asystolie aigue*")? Neither the history nor the condition of the heart in any way supported this suggestion. Dr. Mongour was on the point of giving up the diagnosis and treating the symptoms when he remembered the description of a similar condition from shoes painted with oil of aniline. He then found that the child had put on that morning brown shoes which had been painted on the previous evening with aniline black. There was no longer any doubt as to the diagnosis. He prescribed a draught of caffeine, coffee, absolute rest, and the application of heat. Recovery rapidly ensued. From midnight the child slept calmly and in the morning micturated abundantly several times. The symptoms had then completely disappeared. The urine was analysed by Professor Barthe who found 22·5 grammes of urea and 0·35 gramme of albumin per litre and traces of urobilin

but no trace of aniline or its derivatives. In previous cases a similar failure occurred, which points to the conclusion that aniline is not eliminated by the urine. The aniline had been applied only to the outside of the shoes and had not reached the inner surface and was therefore never in contact with the skin. It follows that the intoxication must have been due to inhalation. Aniline is very volatile and its volatilisation was probably increased by the heat of the feet. A shoemaker informed Dr. Mongour that such cases are frequent and that intoxication is constant if the aniline black used is so strong that a single coat is sufficient, but that if a weaker preparation is used which necessitates the application of three coats at intervals of several hours no poisonous effects are produced. Among the workmen who use the strong preparation of aniline symptoms similar to those which have been produced in children have not been described but only slight headache. In this case the shoes gave out a strong irritating odour like that of dimethylamine. The Comité d'Hygiène Publique de France has issued a warning not to apply aniline to shoes. We may add that all the cases of this accident appear to have occurred in France, usually in children, but one case in a healthy man who went to a funeral in yellow shoes which had been blackened has been recorded. He was seized with vertigo and passed into a state of torpor with cyanosis. In this country no cases appear to have been recorded, probably because we do not convert children's brown shoes into black as the French do.

THE CAMBRIDGE WATER-SUPPLY.

Dr. Theodore Thomson and Mr. P. M. Crosthwaite have just issued a report to the Local Government Board upon the water-supply of Cambridge. The character of this supply has been for some time considered suspicious, and in consequence of an outbreak of enteric fever at Fulbourn Asylum an inquiry was instituted in 1905, conducted by Dr. S. Monckton Copeman. In reference to his report we said in our issue of April 21st, 1906, p. 1121 :—

> The water-supply of Cambridge is obtained by pumping from two sets of wells to the east of the town, near Cherry Hinton and Fulbourn respectively. At Cherry Hinton part of the water thus obtained is derived from the lower greensand, a stratum which is covered by about 125 feet of impervious gault clay and is effectually guarded from any risk of surface pollution. The rest of the Cherry Hinton supply, however, and practically the whole of the Fulbourn well water are derived from a large area of chalk north of the Gog Magog Hills. The surface of this area is covered only by a few feet of top soil; the chalk in question is a thick stratum of "lower chalk"—compact in its character, traversed by numerous and extensive fissures, and containing bands of stone and clay, which cause water to be held up locally. Some three years ago the Local Government Board drew attention to the possibility of risk to the Cambridge wells as a result of the irrigation of untreated sewage from the Fulbourn Asylum over the surface of land situated on the chalk area from which the Cambridge wells apparently drew their supply. In consequence representations on the matter were made by the Commissioners of Lunacy to the visiting committee of the asylum. The latter authority, however, did not admit that danger arose, the Commissioners were not in a legal position to exert effective pressure in the matter, and the subject dropped. Fortunately, evidence that pollution of the Cambridge supply in this way, if it occurs, has produced water-borne disease in Cambridge has been absent and it may be noted that numerous clinical and biological tests applied to the waterworks company's water at Cambridge have hitherto given no occasion for suspicion as to the character of the water. The question at issue, however, has now been placed on a different footing in consequence of detailed inquiries and experiments conducted by Dr. S. Monckton Copeman for the Local Government Board, from which we are bound to conclude that a definite risk exists which it would be unwise to disregard or to attempt to minimise.

In June, 1907, the Senate of the University and the town council jointly applied to the Local Government Board to hold an inquiry as to insuring the water-supply against contamination. The report in question is the result of that inquiry which commenced to be held on Feb. 18th, 1908, and the chief recommendation is that in order to secure from contamination the supply of water furnished by the Cambridge University and Town Waterworks Company the whole of their part of the supply derived from the lower chalk should be abandoned. The authorities have apparently taken some time to realise the existence of the "definite risk" to which we alluded in 1906, but now that their eyes are opened we hope that every precaution will be taken. In a university town in which for a large portion of the year some 3000 of its inhabitants are of an age at which there exists a peculiar susceptibility to enteric fever the purity of the water-supply is of vital importance.

THE PATHOLOGY OF PAROXYSMAL HÆMOGLOBINURIA.

THE study of the phenomena of hæmolysis *in vitro* has thrown some light upon the pathology of that obscure and remarkable condition known as paroxysmal hæmoglobinuria, or paroxysmal methæmoglobinuria as it should be called. It has been shown by Donath and Landsteiner[1] that the attacks depend upon the appearance of an autohæmolysin in the blood. They were able to reproduce the phenomenon *in vitro* in a manner similar to that of Ehrlich upon the finger after the application of a ligature. They found that if they took a mixture of blood with the serum of a hæmoglobinuric person and cooled it to 0° C. for a quarter to half an hour and then exposed it to the ordinary temperature of a bacteriological incubator they invariably obtained hæmolysis. They came to the conclusion, as the result of their experiments, that there exists in the blood of persons liable to hæmoglobinuric attacks a substance not present in normal blood which possesses the peculiar property of uniting with the red corpuscles in the cold, and of causing their destruction with the aid of a complement present in the serum. Their observations have been confirmed by various observers, although they have been differently interpreted by some of them, notably by Widal and Rostaine,[2] who do not favour the hypothesis of an amboceptor only uniting in the cold, and suggest as an alternative explanation a deficiency in the hæmoglobinuric person of an antihæmolytic substance normally present in the serum. In an interesting paper published in the *Archiv für Experimentelle Pathologie und Pharmacologie*, Band LIX., p. 97, Dr. E. Grafe and Dr. Leo Müller of Heidelberg review the previous work on the subject and record their own observations on a case observed in Professor Krehl's clinique. The patient was a labourer aged 66 years, who first noticed that his urine was blood-stained in October, 1902. He subsequently found that he suffered whenever the weather was frosty from attacks in which his urine became red or brownish-black and his fingers and toes blue and numb. These attacks were followed by weakness lasting one or two days and of such a degree that sometimes he could scarcely move his limbs. On physical examination after his admission into the hospital on Oct. 17th, 1907, the heart was found to be slightly enlarged and the aortic second sound accentuated. The peripheral vessels were slightly arterio-sclerotic but the blood pressure was normal. It was found that attacks were readily induced by a cold foot-bath at 8° C. or by a walk when the temperature was at 3° C. After an attack the examination of the blood gave the following results: hæmoglobin, 60 per cent.; red corpuscles, 3,800,000 per cubic millimetre; white corpuscles, 5400 per cubic millimetre; poikilocytes, 1 to 2 per cent.; and some normoblasts. A differential count of the leucocytes showed 28 per cent. mononuclears (with many large lymphocytes), 63 per cent. polymorphonuclears, 6 per cent. myelocytes, and 3 per cent. eosinophiles. After the attack the normoblasts slowly disappeared. The clinical features of the attacks, according to Dr. Grafe and Dr. Müller, are strikingly similar to those which are sometimes to be seen after transfusion of human blood into

[1] Münchener Medicinische Wochenschrift, 1904, No. 36, and Zeitschrift für Klinische Medicin, Band lviii., S. 173, 1906.
[2] Comptes Rendus de la Société de Biologie, February and March, 1906.

a patient. They refer to two cases observed by themselves, one of which was a case of severe anæmia following abortion and chronic diarrhœa, the other a case of anæmia of obscure origin, in both of which the ordinary means of treatment by iron and arsenic failed completely. In one case 100 cubic centimetres, and in the other 200 cubic centimetres, of defibrinated blood were introduced by means of one of the veins at the bend of the elbow. In both about three or four hours later nausea, vomiting, and malaise supervened, the temperature rose after a rigor to 39° or 40° C., and there were severe pain in the back and slight irritating cough. The urine became blood-stained and albuminous. It also contained a few granular casts and an occasional red blood corpuscle. Spectroscopically, the bands of oxyhæmoglobin and methæmoglobin were easily recognisable. About five or six hours after the onset of these symptoms the temperature fell after profuse sweating had occurred, and after about from 24 to 30 hours the symptoms entirely cleared up. Severe toxic symptoms of this kind as a result of transfusion were well known to the older authors and have only within recent years received their explanation. Landsteiner and Leiner have demonstrated that in the serum of certain individuals, healthy as well as diseased, a substance termed an isolysin is present which has the power of causing hæmolysis in blood derived from an individual of the same species. It is therefore recommended that before transfusion a test should be made for the presence of these substances in the blood of both individuals. Dr. Grafe and Dr. Müller repeatedly examined the blood of their patient in the manner recommended by Donath and Landsteiner but did not always obtain hæmolysis. They carried out a number of observations of various kinds to discover the nature of the hæmolytic properties of the blood and to account for its variations. They conclude by adopting the explanation of the phenomena offered by Donath and Landsteiner that there exists in the blood of hæmoglobinuric patients an autohæmolysin. They further state that the condition seems to be frequently associated with a history of previous syphilis, and although they were not able to obtain such a history in their own case they obtained a definite result on a trial of Wassermann's reaction and are therefore disposed to regard it as of syphilitic origin. Since it has recently been found that alcoholic extracts of normal livers and heart can be employed for this reaction instead of watery extracts of syphilitic organs, they put forward the suggestion that certain substances which are normally fixed in healthy tissues are set free by syphilis and that the autolysin and the closely related isolysins may be substances of this nature.

HOUSE-FLIES AND DISEASE.

Dr. H. E. Armstrong, medical officer of health of Newcastle-on-Tyne, has sent us a small pamphlet entitled "House-flies and Disease and the Duty of Sanitary Authorities in Relation Thereto." That the house-fly is a nuisance there can be no doubt, that it can carry disease is certain, but, on the other hand, that the diffusion of summer diarrhœa is mainly due to flies is doubtful.[1] Dr. Armstrong is, however, quite right in his contention that flies, in towns at any rate, should be exterminated and perhaps the best way to exterminate them is to stop their generation. This may be done by the careful removal of stable manure, by the doing away with privies, middens, and open refuse bins, and by relegating stables and cowhouses to the outskirts of the towns. All these remedies are held up by Dr. Armstrong as desirable, but while we quite agree with him we are afraid that the relegation of stables to the outskirts of towns is impossible in most cases and in London it is certainly so. As to Dr. Armstrong's proposals for the prompt removal of refuse we are in thorough accord with them, as also with his suggestions to keepers of milk shops, restaurants, and fried fish shops to prevent or to minimise the congregation of flies on their premises. Even if they do not carry disease the idea of a fly which has just left some piece of decomposing material falling into milk or crawling over butter is revolting. Dr. Armstrong suggests the passing by municipal authorities of stringent by-laws and a statute to secure their universal administration. This is as it should be, and we are in agreement with his proposal that the whole matter should be referred to the Local Government Board.

[1] THE LANCET, Dec. 19th, 1908, p. 1384.

BARBER-SURGEONS.

THE interesting speeches made at the sex-centenary dinner of the Worshipful Company of Barbers[1] amounted in some ways to an informal discussion whether the physician or the surgeon was the senior practitioner in accordance with historical evidence. The rather free translation of Homer's lines in praise of Machaon—

> "A wise physician skilled our wounds to heal
> Is more than armies to the public weal"—

can certainly be made to give evidence on either side, but it must be remembered how free the translation is. From wounds in war to wounds in peace was but a short step and it was little farther to go to minor surgical operations, for the removing of an arrow-head was in itself an operation and needed no little surgical skill. In the time of Hippocrates there was no recognised distinction between the man who practised medicine and him who practised surgery. The physician practised a great part of surgery, and in the writings by Hippocrates, or those attributed to him, there is ample evidence of the wide extent of the operations practised; yet even then there were certain operations which were considered beneath the dignity of the physician. In the "Oath of Hippocrates" the medical neophyte promises that he will not perform lithotomy but will leave it to those who practise that art. It is not clear why this restriction existed; it is possible that the operation was considered so difficult and dangerous that it was desirable that it should be left to a specialist. With the greater knowledge of anatomy possessed by the Alexandrian school went necessarily an increase in the extent of surgery, and both in Greece and in Italy steady progress was made for several centuries. In England little is known of the practice of surgery before the Norman Conquest. The Saxon Leechdoms contain hardly anything relating to surgery. What little surgery was done was carried out partly by the barbers and partly by the priests. It is a little difficult to explain why some portions of surgery were undertaken by barbers, but it is not improbable that bleeding was the first surgical operation undertaken by the barber and that he undertook it because he possessed sharp razors. As is well known, the barber's pole represents the staff grasped by the patient to make the veins more prominent and the white spiral on it represents the bandage used first to increase the amount of blood in the arm and afterwards to bandage the wound, and the brass basin is still seen at the door of some barbers, its peculiar shape being due to the notch at the upper edge where its prototype rested against the arm. The mere fact that the staff and basin are used as insignia by barbers is in favour of the idea that bleeding was the first surgical operation undertaken by them. The evidence as far as the history of the barber-surgeons is concerned points to surgery being junior to medicine, but classical evidence is rather in favour of the claims of surgery,

[1] See THE LANCET, Dec. 19th, 1908, p. 1836.

the treatment of injuries being spoken of, we believe, before the treatment—for example—of febrile conditions due to other causes.

FORERUNNERS OF PASTEUR.

IT has been suggested that Lucretius may have had some shadowy notion of a bacterial nosology when he wrote of the causes of disease:—

> "Primum multarum semina rerum
> Esse supra docui quæ sint vitalia nobis
> Et contra quæ sint morbo mortique necesse est
> Multa volare."

Whatever the Roman poet and philosopher may have meant by his "semina rerum" there is no doubt that certain men of science of the seventeenth century had a perfectly definite conception of a microbic origin of infective disease, and although this has been acknowledged by bacteriologists who have written on the history of their science these forerunners of Pasteur have hardly received their proper share of credit. In this connexion the names that will come prominently to mind are those of Leeuwenhoek, the inventor of the compound microscope, and of Father Athanasius Kircher, the Jesuit priest and scientific encyclopædist, who not only published researches upon physical, biological, and astronomical subjects but was also the father of modern Egyptology. In the middle of the seventeenth century Kircher published his observations on the plague, in which he attributed the disease to the agency of animate *corpuscula*. This was indeed an advance upon the humoral and iatro-chemical conceptions of the period; but Kircher weakened his case by claiming to have seen the "little worms" in the blood, whereas what he probably saw with his simple microscope were nothing but the blood cells. His imagination ran still further away with him when he ascribed the diffusion of infection to "an innumerable number of little winged worms which, leaving the body of the infected patient, fly about in the air in swarms and attach themselves to everything that they meet." We translate this quotation from an extremely interesting historical study published by Dr. Humbert Mollière of Lyons in 1885, entitled "Un Précurseur Lyonnais des Théories Microbiennes," in which he puts forward the claim of Dr. J. B. Goiffon,[1] a Lyons worthy, born in the seventeenth century, to have established by true inductive reasoning a bacterial conception of infective disease. Goiffon's essay appeared anonymously in a publication issued in 1721 by a bureau of health established in his town upon the breaking out of a severe epidemic of plague in Marseilles, its object being to submit to scientific scrutiny the various theories concerning the origin of the disease and the best methods of treating it and to publish an authoritative pronouncement on the subject. Goiffon's contribution to the volume is an "avertissement" setting forth his theory and also an open letter addressed to a Dr. Pestalozzi who had controverted it severely in his "Traité de la Peste" which attributed plague to an inanimate ferment or "leaven." We cannot discuss the remaining contents of the Lyons compendium but desire to bring forward a few salient points of Goiffon's essay. He first shows that the *materies morbi* of plague cannot be conceived to develop spontaneously in the body: a poison must come from without and exercise like effects upon all whom it attacks. He adds with some asperity that it does not matter whether the poison acts as an acid or an alkali, "as if the blood could only be attacked by one of these substances which the chemists have invented." He then suggests that the poison may be propagated by little "worms or insects," but as he develops his thesis he refers to these organisms as "petits corps animés" and "très petits sujets," and it seems evident that he conceived of them as being of simpler structure than ordinary insects. He finds a *primâ facie* probability of their existence in "the persistent adherence of this poison to all bodies to which it is attached and the lightness and ease with which it spreads." He notes that plague often increases in virulence as it attacks more and more people, and reasons that this may well be due to the multiplication of living bodies, but could not be due conceivably to the constant division of an "inanimate ferment," which must get weaker in its effect with each subdivision. He suggests that "poisonous insects brought from foreign countries, such as the Levant, in merchandise and escaping into the air of a town would produce all the fatal effects observed in plague." He notes the well-established fact that the disease often bursts out with great fury and then subsides, recurring after several years of latency, and accounts for it by suggesting that special temperature and other conditions are necessary for the development and continued multiplication of the organisms. He points out that his theory explains the persistence of infection lying hid in boxes or clothes for years, and also the fact that if a man inhale a mere "atom" of the contagium it will infect his whole body, which will then be able to transmit the disease to others. In other parts of his "avertissement" Goiffon comes extremely near announcing the specificity of different organisms in the causation of different diseases, and in discussing the treatment he says that a "contre-poison" or antitoxin should be sought. He gives likewise an intelligent anticipation of the antimicrobic action of mercury in disease. He attributes the ulcerations in animals' mouths to similar "little worms" in their fodder. He acknowledges that his organisms were not visible even by the microscope, but adds "there are great differences between the sizes of an elephant and a mite, and it is quite rational to conceive the existence of insects which are to a mite as a mite is to an elephant." It is an interesting speculation to suppose Goiffon acquainted with the paper which Mr. Anthony Leeuwenhoek, at Delft, communicated to our Royal Society upon Sept. 17th, 1683,[2] and in which he described the many thousands of living creatures revealed to him by his microscope in a grain of tartar from his teeth stirred up in one drop of spittle or clean rain water. "I could not well distinguish the figure, for sometimes it seemed to be an oval and other times a circle: these were exceedingly small and so swift that I can compare them to nothing better than a swarm of gnats or flies, flying and turning among each other in a small space. ..... Besides these animals there were a great quantity of streaks or threads of different lengths but of like thickness, lying confusedly together, some bent, and others straight." In fact, the Dutchman's sharp eyes had seen some of those "petits corps animés" of which the Lyons physician was soon to announce the existence from pure induction. Had the art of the one joined hands with the science of the other, the bacterial doctrine of disease might have emerged from the womb of Time nearly a century and a half before a greater Frenchman delivered it to the world.

[1] Un Précurseur Lyonnais des Théories Microbiennes. Bâle, Lyon, Genève: Librairie Générale Henri Georg.

THE PROHIBITION OF WHITE PHOSPHORUS MATCHES.

IN the factory department of the Home Office some valuable reports on industrial conditions were issued during the year 1908 and further progress was made in respect of the circumstances in which over 5,000,000 of our population work. We are glad, too, to see that Great Britain has now determined to join hands with Germany, France, Italy, and Switzerland in the total suppression of the manufacture, sale,

[2] Philosophical Transactions, No. 159, p. 568.

and importation of white phosphorus matches. It will be remembered that at the International Conference on Labour Regulation which was held at Berne in 1906 a convention was signed by the above Powers with reference to the prohibition of white phosphorus matches but at that time Great Britain did not see her way to sign such convention. It was, however, subsequently found that in order still further to afford protection against "phossy-jaw" one of two courses was necessary—either more stringent regulations or total prohibition, and the decision has fallen upon the latter. This course has been found practicable owing to the fact that the Home Office was able to acquire some control over the patents governing the manufacture of "strike-anywhere" matches and thus to afford facilities to other firms for the acquisition of the necessary plant. The manufacture, sale, and importation of white phosphorus matches will, therefore, be prohibited after Jan. 1st, 1910, except as regards certain provisions with respect to retail dealers which will not come into operation until a year later. The statute governing this prohibition is the White Phosphorus Matches Prohibition Act, 1908. As will be seen by reference to our review columns, a full account of the history of match-making and of the various methods adopted against phosphorus poisoning will be found in Sir Thomas Oliver's comprehensive work on "Diseases of Occupation" which has just been published by Messrs. Methuen and Co.

THE CASE OF MABEL FLORENCE JONES.

THE report of this interesting case before Dr. F. J. Waldo at the City coroner's court will be found at p. 124 of this issue of THE LANCET. The deceased, it may be remembered, died from the results of a fractured skull in St. Bartholomew's Hospital after having been treated at the National Anti-vivisection Hospital, Battersea, and Dr. Waldo with marked fairness adjourned the inquest so that the latter institution could be represented. The verdict eventually found was to this effect: "That Mabel Florence Jones died from diffuse septic meningitis consequent upon a fracture of the skull by a pickaxe having been thrown from the garden of 90, Henley-street, Battersea, into the garden of deceased's house, No. 86, on the 27th September, 1908, and such death was due to accidental causes." We endorse the coroner's words, on which no doubt this verdict was founded, that there was no evidence of neglect amounting to manslaughter, but the jury seems to have been perfectly sure that the fracture was caused by the blow from the pickaxe and was present when the child was allowed to leave the National Antivivisection Hospital, Battersea, with three stitches for treatment. We do not see how any other conclusion could have been arrived at.

A PHYSICO-CHEMICAL METHOD FOR COMPARING THE ANTISEPTIC VALUE OF DISINFECTANTS.

Dr. S. B. Schryver and Dr. R. Lessing communicated to the Society of Chemical Industry on Monday, Jan. 4th, a new method for investigating the efficiency of disinfectants. The principle of the method consists in the determination of the inhibition of the rate of putrefaction of a given mixture in the presence of varying quantities of disinfectants, as indicated by the rate of chemical change of this mixture. For this purpose a solution of 5 per cent. gelatin and 1 per cent. peptone was generally employed, and it was usually infected by fæces. In the presence of putrefactive bacteria the gelatin is broken down into albumoses, peptoses, amino-acids, and finally into fatty acids and ammonia. Advantage was taken of the fact that almost *pari passu* with these changes an alteration in the physical properties of the mixture takes place. Of these the electrical conductivity is measured with the greatest ease, a determination of this factor being an operation which can be performed in a few minutes. Instead, therefore, of determining chemical change directly by chemical analysis the changes in the electrical conductivity were estimated. By comparing the inhibition of a putrefactive change produced by a disinfectant under investigation with that produced by a standard disinfectant, such as phenol, a measure of its antiseptic efficiency could be obtained. The writers of the paper studied the rate of change produced by making sub-cultures at different stages of incubation with a medium of the same composition as the original. On inoculation from the original culture at the early stages the rate of change in the sub-culture is slow, at later stages it is rapid, and within limits practically independent of the amount of inoculating fluid. A putrefactive mixture prepared as a sub-culture in this way should serve as a convenient mixture for investigating the power of disinfectants. Owing to the simplicity of the manipulation the authors claim that the method should serve as a convenient one for the practical investigation of disinfectants.

THE INTERNATIONAL OPIUM COMMISSION.

WE learn from a circular which has been issued by the Society for the Suppression of the Opium Trade that the International Opium Commission will meet at Shanghai on Feb. 1st next. In our issue last week in an article on the Presence of Morphine in Anti-opium "Cures" we pointed out that this international conference had been convened on the initiative of the Government of the United States. The following countries will also be represented at the conference—viz., Germany, China, France, Great Britain, Japan, the Netherlands, Portugal, Russia, Turkey, Persia, and Siam. To the foreign ministers of each of these countries a circular letter has been sent by the above society in which are contained a summary of the present position as regards the sale of opium and the cultivation of the poppy respectively and a concise statement of the views of the British anti-opium societies. The report concludes:—

> We hope that the Governments which participate in the International Commission at Shanghai will not hesitate to take the necessary steps to put an end as quickly as possible to the production and sale of opium, except for strictly medicinal purposes. The traffic which supplies the non-medical use of this drug is condemned by medical science, and Japan has resolutely excluded it from her soil. It is reprobated by the moral judgment of the best elements in the Chinese Government and people. Western civilisation cannot but sympathise profoundly with China in her supreme effort to free herself from this enervating and demoralising scourge. The European nations having colonies or protectorates in the East cannot evade the duty of keeping pace with China. We trust that they will not content themselves with this, but regard themselves as bound in honour to set the example of speedy and effective prohibition.

THE ASSOCIATION OF SCIENCE MASTERS IN PUBLIC SCHOOLS.

THE annual meeting of the Association of Science Masters in Public Schools will be held at the Merchant Taylors' School, Charterhouse-square, E.C., on Tuesday next, Jan. 12th. An exhibition of scientific apparatus and books will be opened at 10 A.M. on that morning, after which Sir T. Clifford Allbutt, the President, will deliver an address upon the Relation of General to Technical Science Teaching. Some very interesting papers are promised arising out of the science curricula in the public schools, after discussing which Mr. C. I. Gardiner, the science master at Cheltenham College, will read a paper upon the Refusal of the General Medical Council to Recognise Public Schools as Institutions where Medical Education may be commenced. As is well known, this is a point upon which the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England differs from the General Medical Council and a discussion on the matter can hardly fail to be of interest to many medical men. The proceedings of the annual meeting

of the association will close with an informal dinner at 7.15 P.M. at the Criterion Restaurant. All further information with regard to the meeting will be supplied by Mr. Douglas Berridge of Newhouse, Sheepridge, Huddersfield.

CARBONIC OXIDE POISONING.

A MEMORANDUM has been issued by the Factory Department of the Home Office dealing with the dangers associated with the manufacture and use of water-gas and other gases produced by the action of steam upon carbonaceous fuel. The danger of these gases is the large proportion of carbonic oxide which they contain, carburetted water-gas commonly containing 30 per cent. and uncarburetted water-gas 50 per cent. In coal-gas the amount of carbonic oxide varies from 4 to 12 per cent. Although there is a diminished mortality there is a steadily increasing number of cases reported of poisoning by this gas in manufacturing premises. A report issued by a departmental committee in 1899 contained the recommendations that the manufacture and distribution for heating and lighting purposes of any poisonous gas which does not possess a distinct and pungent smell should be prohibited and that regulations should be made limiting the proportion of carbonic oxide. Later, in the Acts authorising companies and local authorities to manufacture and supply Mond or similar gas for motive or heating purposes, it is required, first, that the gas shall be strongly scented, and, secondly, either that the proportion of carbonic oxide in the gas shall be limited to 14 per cent., or that the Secretary of State shall impose regulations to protect against the risk of poisoning. The duty of enforcing these regulations devolves upon the inspectors of factories as regards the factories and workshops in which the gas is used. The danger of carbonic oxide poisoning appears to have been increased by the introduction of the suction gas plant and it is evident that further care is necessary in regard to the installation and working of this method. The memorandum enumerates the special precautions which should be observed and concludes with a description of the symptoms of carbonic oxide poisoning and the means of dealing with them by such measures as the immediate application of fresh air, artificial respiration, administration of oxygen, and warmth employed without delay; hence the services of a competent "first-aid" staff are indicated. Quite recently we have had an alarming demonstration of the dangers arising out of gas mains made defective by leakage from the water service. A third service, viz., electricity, if also defective completes the mischief by firing the escaping gas. Failing that, large quantities of coal-gas with its large proportion of poisonous carbonic oxide eventually find their way into the air or perhaps into dwelling-houses, and mysterious cases of poisoning arise. Gas companies have more than once confessed to an enormous leakage taking place in their mains, and we have been freely ridiculed by the "gas" press for taking this fact seriously and regarding it as a menace to public health. We commend the recent accident at Grange-road, Bermondsey, which claimed two lives and dealt out injuries to others, to their notice.

WE regret to announce the death, at the age of 72 years, of Dr. Douglas Argyll Robertson, F.R.S.Edin., which has taken place in Goudal, India. Dr. Argyll Robertson was surgeon-oculist to Queen Victoria and the present King. We hope to publish some notes of his career in a future issue.

THE Hunterian Society's second lecture will be delivered by Mr. J. Bland-Sutton on Wednesday, Jan. 13th, at 8.30 P.M., at the London Institution, Finsbury-circus. The subject will be "On Thrombosis and Embolism after Operations on the Female Pelvic Organs." All members of the medical profession are invited.

A TELEGRAM from the Acting Governor of the Mauritius, received at the Colonial Office on Jan. 4th, states that for the week ending Dec. 31st, 1908, there were 4 cases of plague, all of which proved fatal.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

IN a recent paper on motor matters that was published in THE LANCET of July 4th I suggested the advisability of slipping in a small strainer washer where the petrol pipe joins the carburettor float-chamber, and since then several readers have written to ask what mesh gauze should be used, and as others may be interested I take this opportunity to suggest that a 120 mesh should be employed. In the *Autocar* of July 25th it is stated that mud obtained from the float-chamber of a carburettor was examined and that it consisted of very fine road dust, dust so fine that it would pass through a 90-mesh gauze easily; thus it seems imperative that a 120 gauze instead of the usual 90 is needed. The writer also suggests that it would be as well if a similar gauze were fitted over the air inlet pipe, and as long as this air filter is occasionally cleaned it appears to be a most valuable suggestion. These gauzes can easily be cleaned in the garage and as their use will absolutely eliminate all possibility of petrol jet block I am sure all motorists, especially medical men, will use them and so do away with an unpleasant source of "roadside stop." But it must be remembered that they require occasional cleansing.

A good many motorists now have a dual ignition, and most have, I believe, wisely insisted on having each set absolutely independent of the other, high-tension coil and accumulator, and high-tension magneto, with separate wires and plugs for each. I have a car, an 18-h.p. Darracq, as a matter of fact, so fitted, and when climbing hills I have noted the increase power obtained when both ignitions were used together; it always seemed to me from actual running experience that two sparks, provided they occurred at the same time, gave a better explosion, or what implied that, more power. And these conclusions of mine are now confirmed by experiments carried out by Dr. W. Watson, F.R.S., and which are published in the *Autocar* in an article entitled, "The Relation between Power and Spark." Dr. Watson had two sparking plugs, one over the inlet valve and one over the exhaust and with the engine running at 1100 revolutions per minute the work obtained is considerably greater than is the case when only one spark is employed. With one spark the indicated horse-power per cylinder was 4·6, while with both sparks it was 5·2. With the engine accelerated to 1620 revolutions the difference was even more marked, the single spark giving 6·5 and the double 7·3. As charging accumulators is a very inexpensive matter and as using both sets of plugs is better for the plugs, and, what is more, assures one that both ignitions are in working order, it seems that the indications are always to use both, which means greater power and the satisfaction of knowing that both are in working order. The only thing is they must both fire at the identical same second. This can be insured by running the car, if it be a multi-cylinder one, with two plugs out of one cylinder, taken out and shorted on to the engine, and with the magneto fully advanced, then by advancing the coil ignition lever until the two sparks occur at the same time, the position of the coil ignition lever will be found and can be marked. It will be an advantage if the coil is of the non-trembler type, as the trembler kind due to the lag of the trembler may vary in the time of the spark, which is not so frequent with a non-trembler coil and a positive make and break commutator. The disadvantage, however, is that with this method of firing the mixture the engine cannot be started on the switch. Such well-known and old makers as the De Dion and Darracq have always stuck to this variety—that is, a non-trembler coil and a make and break commutator, the trembler, of course, being there. I believe they claim more uniform results, and from personal experience I think they

are correct, but, of course, as already said, the advantage of a wipe commutator and a trember coil is that frequently the engine will start on the switch.

Seemingly there is keen rivalry among the petrol dealers. Quite recently one firm advertised that they would give 5*s.* for every hundred petrol can seals sent in before a certain date. Unless the car owner is his own driver I do not think he will appreciate this, as it is an incentive to his chauffeur to be extravagant with the petrol; so, though I would welcome a reduction in the price of this needful spirit, I am glad to hear that this offer will shortly be withdrawn. And speaking of petrol reminds me that a formidable rival has come. Lately I was at the Ordnance Wharf of the South Metropolitan Gas Company to examine an ambulance class, and the manager very kindly put in my car on leaving a can of benzol, which is made there, with a request that I would use it instead of petrol. To give it a thorough trial I removed one cylinder cover and thoroughly scraped and cleaned it. I then adjusted the carburettor to admit more air, emptied out all the petrol, and filled up with the benzol. The result was satisfactory; the power was as good and after a few days' run I inspected the cover and still found it clean and free from deposit. The conclusion, therefore, is that benzol, with the carburettor widely open, answers just as well as petrol, and in addition it has this advantage—it can be had for 8*d.* a gallon, whilst petrol costs 1*s.*

MEDICINE AND THE LAW.

A Jury's Recommendation with Regard to Unqualified Practice.

AT a recent inquest at Kensington upon the body of a gentleman named Oswald Thom the jury found a verdict of "Suicide while of unsound mind," and added a rider condemning the practice of "allowing unqualified people to treat such cases." The evidence showed that the deceased, who was subject to melancholia, lived with a Captain Dennis who acted as his companion, having known him for six months. A few days before the deceased took his own life Captain Dennis accompanied him to the house of a Mr. Mills, living in South Kensington, who examined him and suggested that he should stay in London for treatment for a fortnight. Mr. Mills was prepared to see him daily and to charge one guinea for the consultation and half a guinea each for the daily visits. In the witness-box he described himself as a physician qualified by a degree granted at the University of Philadelphia but without any qualification to practise medicine in England. He further said that he was a lecturer on mental and spiritual healing but not a "Christian Scientist." He was in the habit of lecturing his patients with regard to mental cases and in spiritual cases he emphasised the idea that God is all-powerful. He wished to describe his treatment as healing by suggestion and affirmed that part of it consisted of prayer. In spiritual cases he did not talk to the patient but sat beside him and did the healing silently. The coroner commented upon a system of exhortation or advice administered silently and the death of Mr. Thom, who hanged himself with a pocket-handkerchief three days after his visit to Mr. Mills, together with the jury's rider, illustrates observations made in THE LANCET of Dec. 12th, pp. 1759–60.

Mandamus to Appoint a Medical Superintendent.

The case of Rex (Courtenay) *v.* Joint Committee of Carlow Lunatic Asylum, which came before Lord O'Brien, Lord Chief Justice, and Mr. Justice Boyd in Dublin, and is reported in 42 Ir. L. T., p. 233, raised a question of considerable importance to medical officers of asylums. It was an application by Dr. Edward Maziere Courtenay, Inspector of Lunatic Asylums, for a writ of *mandamus* to compel the joint committee of management of the Carlow District Lunatic Asylum to appoint a resident medical superintendent of the Carlow District Lunatic Asylum in February, 1907, and the joint committee of that asylum decided at its ordinary meeting held on Feb. 13th to adjourn the consideration of the matter to a special meeting to be held on Feb. 27th, 1907. On Feb. 27th a motion was carried—

That Dr. McKenna be appointed acting resident medical superintendent pending the permanent appointment, notice of salary for the new appointment to be given at the next board meeting for consideration at the April meeting.

At a meeting on Sept. 11th, 1907, the following motion was carried:—

That at a meeting of the joint committee of the Carlow District Lunatic Asylum held on Sept. 11th for the purpose of appointing a resident medical superintendent, when Dr. McKenna's application for the post was the only one properly before the meeting, it was resolved that his appointment of Feb. 27th last as acting medical superintendent be continued for twelve months.

It is provided by Section 84 (2) of the Local Government Act, 1898, that every such officer shall be a medical practitioner of not less than seven years' standing and shall have served for not less than five years as a medical officer or assistant in an asylum for the treatment of the insane. Dr. McKenna attained the qualifying service of not less than five years as an assistant medical officer in an asylum for the treatment of the insane on July 8th, 1908, but he would not qualify as a registered medical practitioner of not less than seven years' standing until May 20th, 1909. Dr. Courtenay addressed a letter to the joint committee on Oct. 7th, 1907, calling attention to Dr. McKenna's want of qualification and demanding on the part of the Inspectors of Lunacy that the provisions of the law should forthwith be carried out. Further correspondence took place between the joint committee, the inspector, and the Assistant Under Secretary. On April 30th, 1908, the Assistant Under Secretary addressed the following letter to Mr. Keenan, the clerk of the joint committee: "In reply to Mr. Keenan's letter of the 11th inst., in which it is stated that the joint committee of the Carlow District Lunatic Asylum at their meeting on the 8th inst. decided to issue advertisements calling for candidates for the office of resident medical superintendent, the appointment to be made at the ordinary meeting of the committee in May, and the office to be held temporarily for a period of 12 months, I am directed by the Lord Lieutenant to inform you that His Excellency can in no way assent to the proposed limitation of the tenure of the resident medical superintendent. His Excellency is advised that the appointment should be made without any such conditions or limitations, which would be opposed to both the spirit and requirements of the law, and the joint committee at their meeting in May must therefore elect a resident medical superintendent without such conditions, otherwise His Excellency regrets that it will be necessary for him to proceed as already stated and refer the matter to the Attorney-General with a view to the commencement of legal proceedings to compel the committee to comply with the law." The following motion was carried by the joint committee:—

That in view of the fact that the letter from Sir J. B. Dougherty forbids the joint committee to make an appointment of a fully qualified resident medical superintendent for one year, and that they consider they cannot legally carry out the instructions conveyed in that letter of making a permanent appointment, they feel that the only course they can adopt is to adhere to their original resolution of Sept. 11th last appointing Dr. McKenna to the post of acting medical superintendent for twelve months from that date.

It appeared from the affidavit of Dr. McKenna showing cause that at the meeting of the committee held on April 8th, 1908, it was resolved that an advertisement should be issued for candidates for the office in question, the appointment to be made at the meeting to be held in May, 1908, and the office to be held temporarily for a period of 12 months, the duties and conditions of the appointment to be in accordance with the Privy Council Rules and the Local Government (Ireland) Act, 1898. Accordingly, advertisements in pursuance of this resolution were issued by the joint committee, and several applications from persons duly qualified were received. In the meantime, however, the letter of April 30th from the Assistant Under Secretary was received, and accordingly the resolution set out above was passed by the joint committee in May. Mr. Justice Boyd in the course of his judgment said that in his opinion they would render nugatory the whole of the provisions of Section 9 of the Local Government Act if they did not make the order absolute. The committee, without their acts having been confirmed by the county council, had taken on themselves to dictate who was to be appointed. The law was express on the subject that the resident medical superintendent must be a registered medical practitioner of not less than seven years' standing and must have served for not less than five years as a medical officer or assistant medical officer in an asylum for the treatment of the insane. It was admitted that Dr. McKenna did not fulfil either one or other of these requirements, and was therefore disqualified

for the permanent appointment of resident medical superintendent. What was done and by whom? The committee appointed Dr. McKenna acting resident medical superintendent for a limited period. In his opinion the office still remained one to be held during the pleasure of the Lord Lieutenant, and it was absurd to say that the committee, by making an appointment for a fixed period, could take away the power of the Lord Lieutenant to dismiss at pleasure. For these reasons he was satisfied that a *mandamus* lay against the joint committee, though he had arrived at this conclusion not without some doubt in consequence of the words of Section 9 (9) of the Local Government Act.

A Medical Man's Duty as Witness.

In the course of a prosecution in Tromsö of a person accused of spreading venereal disease the medical man by whom the accused stated that he had been treated was summoned as a witness. The accused consented to the practitioner giving evidence; but the latter refused to give any evidence as in his opinion his duty as a medical man and his right to plead professional secrecy prevented his doing so. He argued that his books contained several names identical with that of the accused, but that he did not remember the accused, could therefore not identify him, and in these circumstances were he to make a statement about a patient he might confuse one patient with another and thus betray that other patient's confidence. He refused altogether to state whether he had treated the accused or not. The court, dealing with this point, found that a medical man's exemption from giving evidence on confidential matters does not justify him in withholding evidence when the patient has consented to such evidence being given. In these circumstances the status of a witness is the same for medical men as for others. But if the practitioner is unable to identify the person concerned his evidence must be limited to a statement of this fact, without his being forced to give any further explanation. In other words, the medical man is bound to give an explanation, though with the same limitations applying to all witnesses—i.e., he need not commit himself to statements the accuracy of which he is not positively certain of. The medical man brought the point before the Court of Appeal, the decision of which agreed with the judgment quoted and the reasons given therefor.

THE CASE OF MABEL FLORENCE JONES.

Dr. F. J. WALDO, at the City coroner's court on Dec. 30th, 1908, resumed the inquiry concerning the death of Mabel Florence Jones, aged two years and seven months, who resided with her parents at Henley-street, Battersea, and died on Dec. 18th. Mr. Maurice N. Drucquer, instructed by Mr. R. Tweedy Smith, appeared for the National Antivivisection Hospital, where the child was first treated for a fracture of the skull prior to her death at St. Bartholomew's Hospital on Dec. 18th.

MR. DRUCQUER at the commencement of the proceedings asked if he might examine the house surgeon (Mr. N. Davis) from St. Bartholomew's who appeared at the last hearing.

The CORONER: If you have any questions to put as regards the death of the child you will have an opportunity of putting them to any of the witnesses who are to be called. Dr. Waldo then proceeded to give a review of the evidence given at the previous sitting on Dec. 19th. That evidence was to the effect that about three months ago the child was playing in the back yard when a youth named David George Winson living two doors away threw over the wall a small pick-axe which had been borrowed and had struck the child on the head. She was taken to the Battersea National Antivivisection Hospital, where her head was stitched by the nurse in charge. The stitches were taken out on the following day, and according to deceased's sister she was told that the child need not attend again. Some weeks later the child suddenly became ill, and after being seen by a local doctor was taken to St. Bartholomew's Hospital, where she died a few days subsequently. It was found that her skull had been fractured and death was due to septic meningitis. The child's head was said to be dirty, and Mr. Newton Davis, house surgeon from St. Bartholomew's Hospital, gave it as his opinion that at the National Antivivisection Hospital the fracture ought to have been detected and that if the child had been admitted and properly treated the meningitis would not have arisen, or at least the child's life would have had a better chance under hospital treatment.

EMILY LOUISA JONES (recalled) was the first witness at the adjourned inquiry. Questioned by Counsel for the National Antivivisection Hospital she said she took the child there on Sept. 27th with the young man Winson. The head was washed carefully and the child was taken to Mr. Da Costa. She actually saw the child's head stitched by Nurse Davis. While the second stitch was being put in she (witness) had to go out, she could not stand it any longer. She saw the three stitches in the head. Next day she again took the child to the hospital and saw the other nurse, Nurse Powell, not the doctor first. Nurse Powell told her then not to bring the child again. No one reprimanded her about the dirty state of the child. The doctor did not tell her to bring the child next day. The doctor did see the child next day at about 11 P.M. She first went to the nurse to pay the fee of 4*d*. Nurse Powell took out the stitches. She (witness) had waited there since 6 o'clock. She took the child to St. Bartholomew's Hospital on Dec. 15th. She never told anyone that the child had been struck 14 days before. Winson's mother saw to the child's head and used to bathe it, from Sept. 29th, and she (witness) attended to it also. She could not say why the child was not taken back to the National Antivivisection Hospital. It was not a fact that the child was not taken back because the nurse had reprimanded her very severely about the dirty condition of the child. Witness further stated in answer to a Juror that her mother was blind in one eye and nearly blind in the other.

Mr. NEWTON DAVIS (recalled) said he understood that the child had met with some injury a fortnight before her admission to St. Bartholomew's Hospital. If the child had been going about those 14 days it was due to great carelessness on somebody's part, and if the child had been left to the care it had for nine weeks after fracture of the skull he should expect to find what he saw. The fracture was through both tables of the skull. The outer layer of the periosteum was broken through and it must have occurred at the time of the fracture. Pus was oozing from the wound. He found a piece of bone quite separate lying under the fracture. He could not tell whether the injury was an actual cut, and when he saw the wound it was in such a state that it was impossible to tell whether it was affected by the process of the septic meningitis. The wound was full of granulating tissues when he saw it. In known cases of fracture of the skull he never allowed a child to go out of the hospital. In looking for symptoms of fractured skull he would first of all examine the wound and ascertain whether there was any exposed bone and depression of the skull, then look for any rough edge, any suffusion of the eyes, and any bleeding at the eyes or nose, sickness, enlarged pupils, or coma. If there were none of those symptoms he would probe for splintered bone. In some cases although splintered bone was present it would be possible to probe and not find it, but not in the present case where the fracture was at the seat of the injury itself and the bone was separated. If after such an instrument as that produced (the pick-axe) a blow was effected on the head and a wound was caused and there was injury of the periosteum and fracture,—in that case if the wound had been examined with ordinary skill, in his opinion the fracture would have been discovered by probe. Fractures could be divided up into direct and indirect. In cases of direct fracture like the present case the fracture was at the seat of the injury, in indirect cases the fracture was not at the seat of the injury. In his opinion a fracture could not be caused without the instrument going right down to the bone itself. In any case where there was no fracture but only a clean wound there would be negligence in stitching the wound up if it were not first properly examined and sending the case away, but no negligence if the wound was proved to be only a clean cut. It would be very negligent for a doctor to dismiss even a clean cut from the hospital within two days after the stitches were removed. It was possible for the stitches in the course of nine weeks with a suppurating wound to have worked themselves out from the decayed surface. It was very unusual for a child of deceased's age to have a fractured skull and then run about, as stated, for nine weeks. He would not say it was impossible, if the child had fallen on its head, for the wound to have been caused thereby.

The CORONER: There is no evidence of any injury to the child between the first injury and the time that Mr. Davis saw her.

Questioned by the Coroner Mr. DAVIS further stated that at the post-mortem examination Mr. Gordon Watson dissected the body in his presence and he (witness) made notes of the conditions.

Mr. EDWARD RONALD DA COSTA stated he was a registered medical practitioner and resident medical officer at Battersea General Hospital—the National Antivivisection Hospital—and he resided there. He was a retired army doctor and had been at the National Antivivisection Hospital three years. He was also on the active reserve of the Indian Medical Service. On Sunday, Sept. 27th, at 12.30 P.M. as his accident book showed, he was sent for by the staff nurse who informed him that an accident case had been brought in—the child in question. He saw the child and Nurse Davis was with her. He remembered seeing also the young man in the room but not the sister of the child. The young man told him that the child had been struck on the head with a piece of iron. The nurse was washing the child's head clean and the child herself was in a dirty condition. He could find no depression on the skull or any loose fragment of bone. After doing manual examination he used the probe. There was a fairly clean-cut incised wound on the right parietal region. He examined most carefully and the probe did not reach bone at all but was absolutely on flesh. He told the nurse to stitch the wound and she put in three silk sutures. It was No. 1 silk; they never used silver wire at the hospital.

The CORONER: Is it usual for a nurse to do these minor operations, such as stitching up?

WITNESS replied that their nurse was quite capable of doing it; she was a fully qualified nurse. She put the sutures in under his direction. No anæsthetic was given. The wound was dressed with gluto and bandaged antiseptically and he told the sister, after the bandaging, not to disturb the dressing and to bring the child again next morning. He did not consider the case was one for admission as an in-patient. In the National Antivivisection Hospital there were 30 beds and some cots for children. They could make up a bed in an urgent case.

The CORONER: I notice on page four of the Annual Report for 1907 of the National Antivivisection Hospital, Battersea, this statement: "There are no vivisectors on its staff, no experiments on patients, and there will be no vivisection in its schools when they are established." No experiments on patients—what is meant by that?

WITNESS: I do not know; I do not know that any hospital has experiments on patients.

The CORONER: Is it usual in general hospitals to experiment on patients?

WITNESS: No, sir; but other hospitals are equally at liberty to put that. Mr. Da Costa in his further evidence said that the hospital had something like 21,000 out-patients in a year and had 230 in-patients last year, 270 operations, 1271 accidents, and 10 deaths. He did not attend anybody outside the hospital; his hands were fairly full. He had seen nurses put in stitches in other hospitals in England. The child was perfectly conscious, with no signs of hæmorrhage or fracture of the skull or difference in the size of the pupils or paralysis. The sister of the child

was asked to come on the following day—the second time. He told her to come practically every day. He did not think it was quite correct that the girl waited from 6 to 11 P.M. He did not know the order in which she came up but it would certainly be before 9 o'clock. He examined the wound and was satisfied that it was going on all right. He sent the child in to the nurse in the next room to be re-dressed. He did not take any of the stitches out nor did he give any instructions to the nurse (Nurse Powell) to take out any of the stitches. He told the sister to bring up the child again next morning. She paid the nurse 4*d.* before coming in to him. They had a private ward for paying patients. Some patients gave 5*s.*, some 2*s.* 6*d.*, and others could not afford anything. There was a special ward for which anybody might pay a guinea and there was one private room for which a charge of two or three guineas a week was made, in which case any services were given without fee. The patients were not allowed to call in their own doctor; the hospital was not a nursing home. He distinctly remembered having told the sister to bring the child next morning but he never saw anything more of the child. Sept. 28th was the last time he saw her. She was taken to another hospital in December—three months afterwards—and the National Antivivisection Hospital was blamed for the state of affairs then existing. He could not help thinking that there must have been a subsequent injury to the child. As the child was never seen by anyone it was most likely that the suppuration which subsequently took place was due to negligence of the wound. Supposing the child had been brought daily he would have noticed any suppuration or fracture, in which case he would have performed an operation. There might be a direct fracture without any external mark at all. If there was a wound there might be a direct fracture without the wound going down to the bone. He was at one time in charge of 500 beds in the surgical ward of the Royal Herbert Hospital, Woolwich. Every kind of operation was performed at the National Antivivisection Hospital, which was the only hospital in Battersea. He took it that the wound was caused by a glancing blow of the pick-axe when it was losing power. Had it fallen heavily on the child's skull it would have caused a big hole. With a mild fracture of the skull it was quite possible for the child to be running about for nine weeks.

ETHEL THERESA DAVIS deposed that she was a staff nurse at the National Antivivisection Hospital, Battersea. She had been there nearly two years and lived there. She took charge and saw to the work of the junior nurses. There was a sister in charge and there were two staff nurses and four probationers learning. She had nothing to do with the out-patients except the morning dressings if the sister-in-charge was off duty. She first saw the child about 12.30 P.M. on Sept. 27th and there were a girl and a boy with the child. She had had experience in medical, and especially in surgical cases. The child was bleeding a little. It was her duty to examine the wound before the doctor saw it. The wound was small, perhaps a little more than an inch, on the right side of the skull. She cleansed it with antiseptic lotion. The child was conscious and spoke. The sister of the child was outside all the time. Mr. Da Costa thoroughly examined the wound both with his hands and with a probe and then he said, "There is no bone, nurse; you may stitch." She put in either two or three silk stitches in his presence. She asked the doctor when the child was to come again and he said, "Bring it up on Monday morning (next morning) at 11 o'clock." The directions were given to the boy; no directions were given to the sister, she was in too hysterical a condition. She (witness) did not remember seeing the child again. Next morning she was on duty in the wards, not in the surgery. The child was dirty excepting that it had a clean face; everything else was dirty, including the hair. The wound was one-sixteenth of an inch deep, very slight.

Nurse E. POWELL said she was a second-year probationer at the Battersea Hospital and therefore not fully qualified yet. She saw the child on Monday, Sept. 28th. Between 6 and 7 in the evening the child's sister came to her for a letter to see a doctor. She gave the girl a letter and the girl who had to pay 4*d.* took the letter in to the doctor some time between 8 and 9 after waiting in the hospital from half past six. The sister of the child came to her with a note from the doctor telling her to "dress the wound." She accordingly followed out the instructions of Mr. Da Costa. The head and the body of the child were dirty, the only clean place was round the wound which had been well cleaned up. She did not remove any of the stitches. She gave orders to the sister to wash the child with soap and water. She did not suggest that the child should come again, it was not her duty to do so. She had never seen the child since. The sister was not present when she dressed the wound, the young man held the child during the dressing of the wound.

Mr. MAX OXSLOW-FORD said he was a registered medical practitioner and junior house surgeon at St. Bartholomew's Hospital. On the afternoon of Dec. 15th the child was brought in and he saw it lying in the lap of a young woman; he could see that it was very ill. He understood that the young woman was a neighbour of deceased's parents. He tried to get a history of the case from this neighbour and she told him that the child had received an injury from a piece of iron and he was given to understand that the injury took place a fortnight before. He saw a scar on the head which had healed and in the centre of the scar there was a scab of about the size of a sixpence. While he was examining the head the child began to have twitchings in the face and went into convulsions. The left side was quite paralysed. Then the child vomited. There was no rise of temperature. He told Mr. Davis that he thought there was an abscess in the brain. He admitted the child to the hospital. Mr. Eccles saw the patient and advised operation. The child was prepared and an anæsthetic was given in the usual way by a resident anæsthetist. A flap of the scalp was turned up and the bone immediately exposed. It was proved that the wound was a punctured fracture such as might have been produced quite easily by the small pick-axe produced by either end. About one and a half ounces of matter were let out. He did not see the child afterwards. At St. Bartholomew's Hospital nurses were never allowed to assist in minor surgical operations. There were always students and definite surgical dressers ready to do that kind of work.

The CORONER: Are there any experiments on patients at your hospital?

WITNESS: No, sir.

The CORONER: Could Mr. Robbins say what is meant by that word experiments which appears in what I have already quoted from the annual report of the National Antivivisection Hospital at Batterseа.

Mr. ROBBINS (Secretary of the National Antivivisection Hospital), without being sworn, said: It simply means what it states—that there are no experiments, although everything in treatment is in the nature of an experiment to a certain extent. Some people amongst the poor are very superstitious and shy of hospitals, and in view of that fact the words which you quoted from the report mean that there are no experiments performed for the sake of knowledge rather than for the sake of the patient.

The CORONER: Am I to infer that at other hospitals they do these things?

Mr. ROBBINS: Not in the least. But I should strongly advise every hospital to put the same in their reports in view of the feeling amongst the poor that I have expressed. I am not responsible for the words quoted. I have been secretary of the hospital for 18 months. I draw up the events of the year and these are revised by the board and they issue the report. There is no medical school at the Antivivisection Hospital, so that the nurses would do the minor operations.

Mr. ONSLOW FORD further stated that the child had been in evidently a very bad condition for some little time, he should say for about a week. The students put the stitches in at St. Bartholomew's Hospital; they had to be taught.

Mr. WILLIAM MCADAM ECCLES said he was one of the assistant surgeons to St. Bartholomew's Hospital. On Tuesday, Dec. 15th, he had a message from Mr. Newton Davis asking him to come immediately as there was a child probably requiring operation for suppuration within the skull. He (witness) came to the conclusion when he saw the child that there was matter within the skull. The child had twitchings and some paralysis of the left side of the body and he decided that it was a case which ought to be operated upon as the only chance of saving its life. The child was placed under an anæsthetic and he turned down a flap with the wound towards the centre of the flap and exposed a punctured fracture of the skull in the right parietal region. From it radiated a linear fracture. There was pus oozing from the wound in the skull. He then chipped away some pieces of bone to enlarge the opening and finding that the membrane covering the brain bulged he concluded that there was pus in it. He opened that membrane but no pus came from immediately beneath it. But the brain itself then bulged into the wound, indicating that probably there was pus in the brain substance. He therefore passed a director into the brain substance and, fortunately for the patient, immediately hit off the actual abscess cavity. From that cavity there drained out a considerable quantity of pus which must have been forming there for some length of time. He placed a drainage-tube into the cavity and the child was returned to bed and recovered from the operation exceedingly satisfactorily. It had not recovered from the effects of the injury. The child had some further twitchings after the operation and died from septic meningitis. He was not present at the post-mortem examination. A cerebral abscess might occur weeks or months or even years after an injury, so that it was exceedingly difficult to locate the exact date of the injury which allowed the introduction of the organisms that formed the pus. The instrument produced might have caused the injury. If one knew that an instrument of that kind had possibly caused the injury it was perfectly legitimate and, he should say, the duty of the surgeon to explore then and there on first seeing the patient because of the possibility of the weapon having produced a punctured fracture. He (witness) would have gone further and operated then and there because of the danger. The scalp was more septic than the instrument and the instrument would carry in the septic material from the scalp. That was the reason why these cases ought to be thoroughly well explored. Had he been a house surgeon at the National Antivivisection Hospital he would have admitted the child in view of the possibility of a fracture; it was the rule to do so at St. Bartholomew's Hospital. It was allowable, he thought, for a nurse in small hospitals to be asked to put in stitches under the direction of the house surgeon or the resident medical officer. In the case of scalp wound in a dirty head as a rule one did not sew up because pus was apt to form underneath. When there was a possibility of pus forming the wound should always be left open so as to allow the escape of the pus. In a child where there was a history of a piece of iron having been thrown against the skull he considered it the duty of a house surgeon to admit the child into hospital. Pus might form within three days of an injury or it might take months to form. If there had been a second injury to the child's skull it would have been an exceedingly acute injury and unlikely to have occurred directly under where the original injury was located.

Mr. FELIX CHARLES KEMPSTER deposed that he was a registered medical practitioner at Battersea and police surgeon for the Battersea Division of Police. He had had a large experience and had held over 1000 post-mortem examinations. There could be an incised wound and a fracture of the skull without the fracture being discovered by probe. Supposing he had only been told that the child had been struck with a piece of iron, then if on examination he had found no objective symptoms or signs of any fracture of the skull he should have directed the child to be brought up next day for further examination. If the wound did not extend to the bone he should stitch, but not if the bone was exposed—he should then leave it open.

The CORONER: If anybody were brought to hospital with a fractured head would it be usual for a house surgeon to treat the case and send it away or would it be usual for the case to be taken in?

WITNESS: Cases of fracture of the skull are always detained. Cases of ordinary scalp wounds with no objective symptoms or signs would not be taken in. His practice as police surgeon in cases of injuries to the head in drunken persons was always to send them to the infirmary. He did not think it would always be practicable to take in a child if no fracture of the skull had been discovered by probe. If one took in every child who had an injury to the head one would fill the wards of a hospital very quickly. He had no end of scalp wounds brought to him—children who had fallen down or had been struck with sticks by other children.

Mrs. MARGARET JONES said that the deceased was her child and had been quite healthy from birth. She had had eight children and lost two others before. She had lost her sight in the right eye and could see only a little with the left. There was a yard or garden at the back of the house. It was a six-roomed house. Two rooms were sublet and she and her family occupied the other four. On the Sunday morning the child was playing in the yard with her little brothers. She (witness) was indoors at the time of the injury. She heard the children hollos out and her youngest boy said the child's head was bleeding. He did not say why. She did not see the child before she was brought back from the hospital. She heard from the deceased that she had knocked her head. It appeared that her little boy, eight years of

age, threw a piece of iron into a neighbouring yard and a lad there threw it back again. The child was there at the time sitting down in the garden. The child was taken twice to the hospital and either her daughter, or the young man who threw the iron back, told her the child was not to go again. She (witness) used to shake the powder brought from the hospital on the child's wound and washed it every day once or twice. The head got well and the child was all right until three or four days before the doctor was sent for (Mr. Palmer). He told her to give the child milk and brandy. He saw her again next day and said he thought that an operation was necessary and that the child had better go to St. Bartholomew's Hospital. That was done and she gave her consent to the operation. The young man's mother came in to see the child morning and evening from the time she was taken ill. Her (witness's) daughter dressed the wound when at home. The deceased was playing in the kitchen a week or a fortnight after the accident, and when running along knocked her head against the table. She (the mother) was there at the time. The child told her she had hurt the side of her head, not where the other injury was. It was only just a tap and no bump, and there was no bleeding. The original wound was bound up at the time. She did not know of any other injury to the child. Mrs. Winson took the child into her house and dressed her for some time. She (witness) took off the dressing every day and prepared a fresh bandage until the child had got better and the wound was quite dry. She kept on feeling the open wound to see whether it was dry every time she took off the bandage.

Mrs. MARTHA ELIZABETH WINSON said that she was the mother of 14 children, 11 of whom were alive. She was the wife of a labourer and went out to business in the day-time. She knew the deceased child who lived two doors off. On a Sunday morning two or three months ago her son was chopping some wood and had had lent him an instrument, a bit of pickaxe without a handle. She supposed Mr. and Mrs. Jones lent it to him. She did not see it. All of a sudden she heard a scuffle through the passage and her boy came and told her that he had hit the child with a piece of iron, that he had thrown a piece of iron from the garden and that it hit the child's head after bouncing from the wall. He took the child to the doctor. Jones's wall was about 3 feet 6 inches or 4 feet high and her fence was higher. She was told by her boy and the mother of the child that at the hospital they were told not to go back any more and she (witness) attended to the child night and morning for a fortnight. The child had no other injury to her knowledge. She washed the wound for three weeks with warm water and used boric powder. The child was running about up to a week before she died. She attended to the child night and morning because she thought the mother was not able to attend to it. The child was a fairly good-sized baby.

DAVID GEORGE WINSON said that he was a private in the East Surrey Special Reserve at Kingston and was 18 years old next April. He was in his backyard at 90, Henley-street, on a Sunday some time back chopping wood with the implement produced. Mrs. Jones's little boy threw it to him and he threw it back the same way as it had been thrown to him. He did not know the child was there. The pick-axe struck the fence of Jones's neighbour's garden and then bounced over the wall. He then heard the baby cry and then jumped up and saw her. He rushed out into Mrs Jones's and seized the baby and rinsed the wound on the head and stopped it from bleeding. He hit the child quite accidentally, he did not know anybody was in the yard. He then took the child to the hospital. There he first saw the nurse and then the doctor came. The nurse cleaned the wound and then the doctor felt all over the head. He (witness) was not present all the time. On the Sunday the nurse told him to fetch the child again on the Monday. He did so and arrived at the hospital about 6 o'clock and waited five or ten minutes until it opened. He saw the nurse and she told him to look at how she was doing the bandaging. The same doctor did not come down on the Monday. He (witness) took home some boric powder and lint and bandaging to dress the wound. The nurse said, "Need not come any more unless the wound is bad or worse." He knew nothing about the child's head being dirty. The wound was clean. The sister of the child was outside at the time and did not hear the nurse say anything about not coming back again. The nurse told him and he told the sister. The nurse told him to keep the wound clean, to put the stuff on, and to keep the bandage clean.

Mr. PERCY ALLAN PALMER said that he was a registered medical practitioner at Battersea Park. He was called in to see the child on Friday, Dec. 11th, in the evening. The child was subconscious and in bed and very ill. The history of the case at the time was that the child had been ill for two days and had had fits on the Wednesday night previous. They put the child's condition down to her having had the fits. He doubted that and proceeded to examine the child very carefully all over. He found a huge matted mass of hair and discharge covering the whole vertex and forming a skull-cap from 5 to 6 inches in diameter. The child's condition at the time suggested to his mind meningitis. He then asked if the child had had any injury to its head. The condition on the head had every appearance of being a neglected wound of weeks certainly, probably months, standing. The child was otherwise in a dirty condition. The remaining part of the hair had evidence of pediculosis. On being aroused she was very intelligent—an advanced child for her age. At the time he gave a note to the sister to take to a local charitable nursing institution requesting that a nurse personally should attend. The nurse on his instructions proceed to remove the huge mass, and after partly getting it away she sent him a message to come again. He did so and removed the mass, this occupying him about one and a half hours. Beneath the mass he found a more or less circular granulating wound about one inch in diameter. It had the appearance of an ulcer. The general condition of the child pointed, in his opinion, to meningitis. The nurse twice daily cleansed and fomented the wound. He also saw the child daily, and on the night of the 12th she developed signs of cerebral irritation—twitching movements on the left side. After 24 hours' treatment the child seemed to improve and the clonic movements stopped. On the 14th she had a distinct convulsion of the left side followed by complete paralysis of the arm, leg, and face. That indicated pus with pressure. On the following Tuesday he telephoned to St. Bartholomew's and the child was admitted there. He gave a card written on the back that the child in his opinion had a meningeal or cerebral abscess. He had been a house surgeon four years and always used to take in cases of a punctured wound on most parts of the body. A punctured wound was considered dangerous. Short of there being any fracture he would take a punctured case in at once and watch the case. It was not his experience that all the hospitals would be filled up with such cases. He did not say he would go as far as to explore unless the evidence pointed to a fracture. A punctured wound meant generally a wound deeper than it was in width. In such a wound it was the custom to examine it with a probe and ascertain if the wound extended to the bone, and, if so, one could distinguish the fracture either by a fissure into which the probe slipped, or else if there was any loss of substance in the bone the edge could be felt. There might be an incision in the scalp about an inch long, with a punctured wound without the dicovery being made, on examination with a probe, that the skull had been punctured. The puncture was not obvious without examination by a probe unless it was a very large puncture. In the child there was no evidence of any other than the one wound and it might have been caused by an instrument such as the one produced.

Mr. JOHN PARKER, a detective-sergeant from Battersea, gave evidence to the effect that Henley-street, Battersea, was a very rough neighbourhood and the poorest of the working class resided there. In the majority of the houses the inhabitants were huddled together like sheep more than anything else. The children in that part looked fairly well nourished. In 1905 an inquest was held on a child, aged nine weeks, who died at Henley-street from improper feeding. In 1904 a lad, aged 11 years, died at Henley-street from tuberculous meningitis.

Mr. ARTHUR VOLCKMAN MARSH, one of the beadles for Bishopsgate Within and acting as coroner's officer, also spoke to the poorness of the people residing at Henley-street, Battersea. The place was not properly habitable. He added that the weight of the pick-axe was 1 pound 13 ounces, and from inquiries he heard that it struck the fence or wall before it struck the child.

The CORONER, addressing the jury, pointed out that it was their duty to consider whether the death of the child was due to accidental causes or to any neglect, and by neglect he meant gross culpable criminal neglect, which really meant manslaughter. He did not think there was any evidence of neglect amounting to manslaughter in the case of the lad Winson; apparently the injury to the child was not meant, and, moreover, the neighbourhood down there was very rough and they must not really judge it as they would, for instance, the West-End. As regarded the treatment at the Antivivisection Hospital by Mr. Da Costa, personally he did not think there was any evidence of neglect amounting to manslaughter. They might or might not think there was some error of judgment on Mr. Da Costa's part. But they should take into consideration that there were a good nu mber of patients treated there, both out- and in-patients, and possibly they might think that the hospital might be somewhat understaffed. It seemed to him that Mr. Da Costa had a great deal of work to do there. He did not think they required to go into the question of the nursing staff. As to the parents, he did not think it could fairly be said that there was any criminal neglect, at any rate, on their part. In conclusion, Dr. Waldo pointed out to the jury that if they unanimously considered it necessary to add any rider to their verdict he would accept it.

Without retiring the jury unanimously agreed upon the following verdict and without any rider:—"That Mabel Florence Jones died from diffuse septic meningitis, consequent upon a fracture of the skull by a pickaxe having been thrown from the garden of 90, Henley-street, Battersea, into the garden of deceased's house, No. 86, on the 27th September, 1908, and such death was due to accidental causes."

BRITISH MEDICAL BENEVOLENT FUND.

AT the December meeting of the committee 23 applications were received and sums amounting to £205 voted in relief, six cases being passed over. Appended is an abstract of the cases assisted.

Daughters, aged 50 and 34 years, of late M.R.C.S., L.S.A. For the last ten years have been compelled to nurse their invalid father, an annuitant of this Fund and of Epsom College. Are now endeavouring to obtain employment. Voted £20.

Daughter, aged 29 years, of late M.R.C.S., L.S.A. Is unfitted for anything but house work and is one of several sisters just left quite unprovided for. Voted £10.

Widow, aged 68 years, of M.D. Quite unprovided for at husband's death and unable any longer to obtain post as a housekeeper or companion. No children. Voted £12.

M.D. Aberd., aged 76 years. No income and nearly blind. No children. Has been suddenly deprived of help from relations. Voted £18.

Widow, aged 58 years, of M.R.C.S., L.S.A. Husband has recently died and furniture has been sold to meet pressing liabilities, which proceeds of the death vacancy if sold will not cover. Six children but only able to give very slight help. Voted £12.

Widow, aged 60 years, of L.F.P.S. Glasg. Left without provision at husband's death several years ago and has hitherto supported herself by acting as nurse-companion or housekeeper. No children. Voted £12.

Daughter, aged 61 years, of late M.D. Edin. No means. Used to maintain herself as a governess, but for the last few years has been compelled to devote all her time to an invalid sister. Slight help from friends. Relieved three times, £36. Voted £12.

Widow, aged 34 years, of M.B., C.M. Glasg. Income £18 a year; is acting as nurse at a provincial hospital but only receives £5 as salary for the first year. Two children, aged 12 and 11, both at an institution but obliged to be removed before the holidays on account of an outbreak of diphtheria. Relieved three times, £20. Voted £10.

Widow, aged 49 years, of L.S.A. Since husband's death has endeavoured to support herself by giving music lessons and letting rooms, but has been obliged to use a small legacy left by an aunt a few years ago and now exhausted. Two daughters, aged 15 and 14 years. Relieved twice, £20. Voted £10.

Wife, aged 39 years, of M.R.C.S., L.R.C.P., who is confined in a county asylum. No income; receives £1 a week as a district nurse but has to pay her rent and other unavoidable expenses. Three children, the youngest only three. Relieved once, £12. Voted £12.

Daughter, aged 49 years, of late M.R.C.S., L.S.A. Is a trained nurse but has been in bad health for the last few years and for some months

past has been quite incapacitated No income. Relieved once, £5. Voted £10.

M.R.C.S., L.S.A., aged 63 years. For the last few years has endeavoured to support himself by locum tenencies but has recently been incapacitated by ill-health for several months and is now only able to undertake quite light work. Two sons only earning a small weekly wage; wife is endeavouring to establish a boarding-house. Relieved once, £10. Voted £10.

M.R.C.S., aged 65 years. For last two years has been incapacitated by serious heart disease. No income, only very slight help from children. Wife receives paying guests. Relieved twice, £30. Voted £18.

Widow, aged 64 years, of M.R.C.S. Eng., L.R.C.P. Edin. Only income £20 a year from a house the lease of which expires in a few years' time and to which expensive repairs have been necessary. Relieved nine times, £102. Voted £12.

Daughter, aged 64 years, of late M.D. Lond. Has supported herself for several years by work of different kinds but finds it increasingly difficult to get. Relieved once, £5. Voted £5.

Daughter, aged 62 years, of late M.D. Edin. Has maintained herself for many years but now unable to do so on account of defective eyesight. Receives a little help from a fund for poor ladies. Relieved four times, £46. Voted £12.

Widow, aged 50 years, of L.R.C.S. Edin. Quite unprovided for at husband's death. Maintains herself by letting lodgings, with slight help from a son and daughter, but has had her rooms unoccupied for some months during the summer. Relieved three times, £25. Voted £10.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 8th, 1831.

Deadly Adulteration and Slow Poisoning; or, Disease and Death in the Pot and the Bottle; in which the Blood-empoisoning and Life-destroying Adulterations of Wines, Spirits, Beer, Bread, Flour, Tea, Sugar, Spices, Cheesemongery, Pastry, Confectionary, Medicines, &c., are laid open to the Public, with Tests or Methods for ascertaining and detecting the Fraudulent and Deleterious Adulterations, and the good and bad qualities of those Articles: with an Exposé of Medical Empiricism and Imposture, Quacks and Quackery, Regular and Irregular, Legitimate and Illegitimate; and the Frauds and Mal-practices of Pawnbrokers and Madhouse keepers. By an Enemy of Fraud and Villany. London: Sherwood and Co. 12 mo. pp. 187. 1830.

This strange, but interesting book, is evidently the production of a man of considerable talents, though whimsical mind, and superficial in information on some important particulars. He has followed in the steps of the celebrated Accum to a certain extent, and this notorious author he certainly equals, if he does not excel him, in the industry and sagacity with which he penetrates into the arcana of various trades and mysteries, the deceptions of which, whether actual or pretended, he proclaims to the country in no very complimentary terms. His list of adulterations, as may be seen from the title, forms a lengthened catalogue, and extends almost to every item in our daily consumption. Our bread, our tea and sugar, our fruit, wine, cheese, spirits, porter, &c., nay, even our meats, have their several imitations; nothing that we eat or drink, according to the author, has escaped the infernal traffickers.

We quote, as an example, his enumeration of the various alien ingredients with which he asserts that gin is occasionally associated:—

"The ripe taste which rum or brandy that has been long kept in oaken casks obtains, is imparted to new brandy and rum by means of a spirituous tincture of raisin-stones and oak saw-dust. And the water distilled from cherry-laurel-leaves is frequently mixed with brandy and other spirituous liquors to impart to them the flavour of the cordial called noyeau. Sugar of lead not unfrequently forms part of the flavouring ingredients of the retailers' rums. But the perfection of adulteration is in gin,—cheap gin—'the *real* comfort,'—patronized by the poor for its supposed GENUINENESS! This infernal compound of combustibles is distinguished from the other slow poisons to which a large portion of the population of 'the queen of cities,'—our 'modern Carthage,' make themselves the willing victims, by the poisonous nature of the ingredients of which it is composed. These are the oils of vitriol, turpentine, juniper, cassia, caraways, and almonds, sulphuric ether or phosphorus, extracts of orris-root, angelica-root, capsicums or grains of paradise, sugar, and heading. The aid of lime-water and of spirits of wine is also invoked in the course of the operation. The purposes of these mischievous ingredients are as follow:—the oil of vitriol is to impart pungency and the appearance of strength, when the liquor is applied to the nose, while the extract of capsicums or of grains of paradise is designed to perform the same office for the taste. The extract of orris and angelica roots give a fulness of body, and the coveted flavour called cordial, to the large proportion of the compound, which consists only of water. The remaining oils are to give strength, the sugar to sweeten the composition, and the lime to unite the oils with the spirit; while the sulphuric ether, phosphorus, and heading, are intended to give the semblance of being highly spirituous, from the fiery taste, and the appearance of the light bead which is caused to appear and remain for some time on the surface of the noxious compound. The introduction of the white arsenic is intended to promote an irritable and feverish thirst, so that the poor deluded customer may be compelled to have recourse to fresh potations of the 'liquid fire.'"

There are many benefits and many corresponding evils, which may arise from such statements as those we have extracted, according to the deliberation or inconsiderateness with which they are put forth. If the fearful and disgusting list be constructed upon actual observation,—if chemical evidence, based on analysis, be added,—if individual malefactors be selected and held up to public animadversion, then the author effects a noble and a patriotic purpose; but if, on the contrary, impeachments are issued against crafts and trades, unsupported by chemical facts or particular and well-authenticated statements,—or, as the case may be, if these accusations are made for the sinister object of extracting a pecuniary income from the tribute of general terror and unnecessary excitement, then the evil becomes paramount indeed; for, while needless apprehensions usurp the place of judgment and good sense, fear and disgust convert our most wholesome aliments into poisons more pernicious than the adulterations pretended to be decried.[1]

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 7766 births and 5668 deaths were registered during the week ending Jan. 2nd, 1909. The annual rate of mortality in these towns, which had been equal to 15·3 and 12·8 per 1000 in the two preceding weeks, rose to 18·2 in the week under notice, this increase being mainly due to delay of registration during the latter part of Christmas week. During the 14 weeks ending on Saturday last the annual death-rate in these towns averaged only 14·9 per 1000, and in London the mean rate during the same period did not exceed 14·3. The lowest recorded annual death-rates in these towns during the week were 6·6 in King's Norton, 7·7 in Hastings, 9·1 in York, and 9·6 in Bournemouth; the rates in the other towns ranged upwards, however, to 21·3 in Wigan, 23·4 in Oldham, 23·5 in Liverpool, 24·1 in Sunderland, 25·1 in Coventry, and 30·4 in Merthyr Tydfil. In London the recorded death-rate during the week was equal to 19·6 per 1000. The 5668 deaths from all causes in the 76 towns exceeded by 1671 the low number registered in the previous week, and included 497 which were referred to the principal epidemic diseases, against 418 and 401 in the two preceding weeks; of these 497 deaths, 231 resulted from measles, 82 from diphtheria, 62 from diarrhœa, 47 from whooping-cough, 41 from "fever" (principally enteric), and 34 from scarlet fever, but not one from small-pox. The deaths referred to these epidemic diseases in the week under notice were equal to an annual rate of 1·6 per 1000, against 1·3 in each of the three preceding weeks; in London the recorded rate from these diseases was equal to 1·7 per 1000. No death from any of these epidemic diseases was registered during the week in Brighton, Norwich, Northampton, Reading, or in seven other smaller towns; the annual death-rate therefrom, however, ranged upwards in the other towns to 4·0 in Middlesbrough, 4·1 in West Ham, and 6·9 in Leicester. The fatal cases of measles in the 76 towns, which had been 182, 164, and 163 in the three preceding weeks, rose to 231 in the week under notice, and caused annual death-rates equal to 2·9 in Great Yarmouth and in Rochdale, 3·0 in West Ham and in Middlesbrough, and 6·3 in Leicester. The 82 deaths from diphtheria also showed an increase upon recent weekly numbers, and caused the highest rates of mortality in East Ham, Salford, King's Norton, Birkenhead, and Devonport; 31 deaths from this cause were registered in London and its suburban districts. The 47 fatal cases of whooping-cough, however, showed a decline, but caused death-rates equal to 1·1 in Swansea and 1·5 in Wolverhampton. Of the 41 deaths referred to "fever," 10 were recorded in Manchester and Salford, three in Liverpool and in Leeds, and two each in Plymouth and Warrington. The 34 deaths from scarlet fever were fewer than in any recent week, but included 13

[1] An excerpt only of the review has been transcribed.

in London and its suburban districts, six in Liverpool, and four in Manchester. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily declined in the five preceding weeks from 3831 to 3453, had increased again to 3557 on Saturday, Jan. 2nd; the new cases of this disease admitted to these hospitals during the week under notice were 379, against 426 381, and 303 in the three preceding weeks. The registered deaths in London referred to pneumonia and other diseases of the respiratory organs, which had steadily declined in the six preceding weeks from 334 to 202, rose to 386 last week, but, notwithstanding the delay of registration in the previous week, were 81 below the corrected average number in the corresponding week of the five years 1903–07. The causes of 66, or 1·2 per cent., of the deaths registered in the 76 towns during the week were not certified, either by a registered medical practitioner or by a coroner. All the causes of the deaths registered during the week under notice were again duly certified in Leeds, Bristol, West Ham, Bradford, Salford, Newcastle-on-Tyne, and Hull, and in 44 other smaller towns; the 66 uncertified causes of death in the 76 towns included 14 in Liverpool, ten in Birmingham, five in Coventry, four in Sheffield, and three each in Sunderland, Merthyr Tydfil, Bootle, and West Bromwich.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 16·6 and 16·1 per 1000 in the two preceding weeks, rose to 17·4 in the week ending Jan. 2nd, 1909. During the 14 weeks ending on Saturday last the annual death-rate in these eight towns averaged 15·5 per 1000, and exceeded by 0·6 the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 14·6 in Aberdeen and in Leith to 18·5 in Glasgow and 18·8 in Greenock. The 622 deaths registered in the eight towns showed an increase of 55 upon the number in the previous week, due in great measure to delay of registration during the Christmas week, and included 60 which were referred to the principal epidemic diseases, against 56 and 51 in the two preceding weeks; of these 60 deaths, 23 resulted from whooping-cough, 22 from diarrhœa, eight from diphtheria, three from "fever," three from scarlet fever, and one from measles, but not one from small-pox. These 60 deaths were equal to an annual rate of 1·7 per 1000, exceeding by 0·1 the mean rate during the week from the same diseases in the 76 English towns. The 23 fatal cases of whooping-cough in the eight Scotch towns exceeded by but one the number returned in each of the two preceding weeks, and included 20 in Glasgow and two in Edinburgh. The 22 deaths attributed to diarrhœa showed a considerable increase upon the numbers in recent weeks; nine occurred in Glasgow, six in Dundee, and two each in Edinburgh, Aberdeen, and Paisley. The eight deaths from diphtheria were fewer by two than those in the previous week; three were recorded both in Glasgow and in Paisley. All the three deaths referred to "fever" were certified as cerebro-spinal meningitis, and included two in Glasgow and one in Edinburgh. Two of the three fatal cases of scarlet fever occurred in Dundee. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 101 and 115 in the two preceding weeks, rose to 120 in the week under notice, but were eight below the number returned in these towns in the corresponding week of last year. The causes of 23, or 3·7 per cent., of the deaths registered during the week in the eight towns were not certified; in the 76 large English towns during the same week the proportion of uncertified causes of death did not exceed 1·1 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had steadily declined in the four preceding weeks from 23·8 to 17·2 per 1000, was equal to 28·3 in the week ending Jan. 2nd, 1909. This increase was probably due in great measure to delay of registration in the previous week. During the 14 weeks ending on Saturday last the death-rate in the city averaged 20·5 per 1000, whereas the mean rate during the same period did not exceed 14·3 in London and 14·4 in Edinburgh. The 214 deaths of Dublin residents during the week under notice exceeded by 84 the number registered in the previous week, and included 12 which were referred to the principal epidemic diseases, against 13, 11, and six in the three preceding weeks. These 12 deaths were equal to an annual rate of 1·6 per 1000; the rate from these diseases in the same week was equal to 1·7 in London and to 0·7 in Edinburgh. Of the 12 deaths from these epidemic diseases in Dublin last week four resulted from diarrhœa, three from measles, three from whooping-cough, and two from diphtheria, but not one either from "fever," scarlet fever, or small-pox. Allowing for delay of registration in the previous week, the fatality of these epidemic diseases showed no increase in Dublin last week. The 214 deaths from all causes during the week included 40 of infants under one year of age and 54 of persons aged upwards of 60 years. Nine inquest cases and seven deaths from violence were registered during the week; and 83, or 38·8 per cent., of the deaths occurred in public institutions. The causes of four, or 2·0 per cent., of the deaths in Dublin registered last week were not certified; the proportion of uncertified causes of death in Edinburgh was equal to 5·7 per cent. last week, while in London the causes of all but two of the 1804 deaths were duly certified.

THE SERVICES.

ARMY MEDICAL SERVICE.

Surgeon-General William B. Slaughter is placed on retired pay (dated Dec. 31st, 1908). Colonel Arthur W. P. Inman, half-pay, retires on retired pay (dated Jan. 6th, 1909).

ROYAL ARMY MEDICAL CORPS.

Major G. S. Mansfield has been appointed to the Eastern Command.

TERRITORIAL FORCE.

Infantry.

6th Battalion, The Prince of Wales's Own (West Yorkshire Regiment): Surgeon-Lieutenant Richard Bladworth, from the 2nd Volunteer Battalion, The Prince of Wales's Own (West Yorkshire Regiment), to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

Royal Army Medical Corps.

Major Andrew Moyes, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Major, with precedence as in the Volunteer Force (dated April 1st, 1908). Major Andrew Moyes resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Nov. 12th, 1908).

For attachment to Units other than Medical Units: Captain George Gordon, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Surgeon-Captain John Lithgow, from the 2nd Lanarkshire Royal Engineers (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Robert Lindsay (late 1st (Inverness-shire Highland) Volunteer Battalion, The Queen's Own Cameron Highlanders) to be Lieutenant (dated April 1st, 1908). Charles Henry Allen, to be Lieutenant (dated Nov. 17th, 1908). Surgeon-Lieutenant Alexander Tydd Mulhall, from the 7th Battalion, The Sherwood Foresters (Nottinghamshire and Derbyshire Regiment), to be Lieutenant, with precedence as from Dec. 15th, 1906 (dated Nov. 19th, 1908). Captain Claude Buchanan Ker, from the 1st Lothian Bearer Company, Royal Army Medical Corps (Volunteers), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant James Andrew to be Captain (dated April 1st, 1908). William Seaton Paterson (late Surgeon-Lieutenant, 2nd Volunteer Battalion, The Highland Light Infantry) to be Lieutenant (dated Nov. 2nd, 1908). Horatio William Alexander Cowan to be Lieutenant (dated Nov. 27th, 1908).

Unattached List.—Captain Henry Wade, from the Edinburgh Company Royal Army Medical Corps (Volunteers), to be Captain for service with the Edinburgh University Contingent, Senior Division, Officers Training Corps (dated Oct. 8th, 1908).

3rd Lowland Field Ambulance: Major Alexander A. Ross to be Lieutenant-Colonel (dated August 15th, 1908). Lieutenant David George Davidson to be Lieutenant (dated Dec. 4th, 1908).

3rd Northern General Hospital: The undermentioned to be officers whose services will be available on mobilisation (dated Jan. 2nd, 1909):—To be Lieutenant-Colonels: William Dyson, Rutherfoord John Pye-Smith, Duncan Burgess, and Simeon Snell. To be Majors: William Smith Porter, Arthur John Hall, Harry Lockwood, William Tusting Cocking, George Wilkinson, and Albert Ernest Naish. To be Captains: Archibald Young, Arthur Rupert Hallam, Stanley Riselly, William Harwood Nutt, Graham Scales Simpson, and Alexander Garrick Wilson.

4th Northern General Hospital: Major William Henry Breffit Brook, from the Mobilisation List, Royal Army Medical Corps, Territorial Force, to be Lieutenant-Colonel (dated Nov. 3rd, 1908). Frederick Samuel Lambert to be Major (dated Nov. 3rd, 1908).

1st Western General Hospital: The undermentioned to be officers whose services will be available on mobilisation (dated July 7th, 1908):—To be Lieutenant-Colonels: Thomas Robinson Glynn, Rushton Parker, Sir James Barr, and William Alexander. To be Majors: Major Ronald Ross, C.B., I.M.S. (retired), Frank Thomas Paul, Thomas Bushby, Robert Jones, Robert William Murray, Thomas Robert Bradshaw, Edgar Athelstane Browne, and John Utting. To be Captains: Peter Davidson, John Robert Logan, John Middlemass Hunt, Frederick Charles Larkin, William Permewan, Douglas Douglas-Crawford, John Lloyd Roberts, Charles Thurston Holland, Robert James McLean Buchanan, Robert Alexander Bickersteth, William Barrett Warrington, William Fingland, Robert Craig Dun, Hubert Armstrong, Claude Rundle, John Hay, Theodore Robert William Armour, Robert Ernest Kelly, and Vivian Chastel de Boinville.

Sanitary Service: The undermentioned to be appointed officers whose services will be available on mobilisation (dated Jan. 2nd, 1909): To be Lieutenant-Colonels:—William Collingridge (late Surgeon-Lieutenant-Colonel, Royal Army Medical Corps (Militia)), David Samuel Davies (late Surgeon-Colonel, 1st Gloucester Royal Garrison Artillery Volunteers), Robert Shirra Gibb (late Surgeon-Lieutenant-Colonel, 2nd Volunteer Battalion, The King's Own Scottish Borderers), Matthew Hay, Sir Shirley Forster Murphy, and William Goldie Stevens (late Surgeon-Lieutenant-Colonel, 2nd Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders)). To be Majors: Sidney Barwise, Philip Boobbyer, William Bruce, Surgeon Henry Beale Collins (retired, Royal Navy), Robert Musgrave Craven, Captain David Robertson Dobie, Henry Handford, Edward William Hope, William James Howarth, Herbert Jones, Honorary Captain in the Army Thomas William Gordon Kelly (late Captain, Royal Army Medical Corps (Militia)), Henry Richard Kenwood, Henry Harvey Littlejohn, John Christie McVail, Arthur Augustus Mussen, Honorary Captain in the Army John Edward O'Connor (late Captain, Royal Army Medical Corps (Militia)), Harry Cooper Pattin, Arthur Edward Permewan, Harold Meredith Richards, Hugh Stott, John Frederick Joseph Sykes, William Henry Symons, Gerard Charles Taylor, James Scott Tew, John Clough Thresh, Edward Walford, William Williams, and William George Willoughby. To be Captains: William Archibald, William Bowie Barclay, Henry William Beach, Davy Turner Belding, Lloyd Middleton Bowen-Jones, George Arbuckle Brown, Walter Falconer Brown, James Angus Cameron, George Hedwig Carrington, Middleton Connon, Francis James Henderson Coutts, John Hedley Crocker, Arthur Cutfield, James Dawson, George Dick, Alexander Duncan, Robert Ayton Dunn, Mark Farrant, Edmund Towers Fison, Duncan Forbes, John Thomas Graham, Thomas William Graves, Augustine Griffith, Andrew Johnston Hall, David Havard, James Andrew Hislop, Richard Jones, Alexander Ledingham, William Collins Lewis, George Frederick McCleary, James Doig McCrindle, Coll Reginald Macdonald, Alister James McGregor, William Mackie, Roger McNeill, John Herbert Hawkins Manley, Archibald Campbell Munro, John Murray, James Thomas Charles Nash, Louis Coltman Parkes, Maurice Paterson, Herbert Peck, George Peterkin, Francis Barclay Wilmer Phillips, John Thomson Prangnell, Arthur Maxwell Nicholson Pringle, Edward William Rees-Jones, David Rennet, Alexander Robb, William Robertson, Thomas Robinson, Sydney James Roderick, Thomas Rogerson, James Maxwell Ross, Thomas Rutherford, John Edward Sandilands, Harold Scurfield, Ernest Hugh Snell, James William Somerville, Friend Edward Streeten, Charles Templeman, Albert Edward Thomas, George Lewis Travis, James Peter Watt, Lawder Thomas Whelan, John Humphry Williams, John Thomson Wilson, Robert Mortimer Yule, and Marcus George Yunge-Bateman.

Major G. Sims Woodhead, from the London Companies, Royal Army Medical Corps (Volunteers), to be Major, with precedence as in the Volunteer Corps (dated April 1st, 1908). Major G. Sims Woodhead, to be Lieutenant-Colonel, with seniority next below W. G. Stevens (dated Jan. 2nd, 1909). Surgeon-Lieutenant William Starbuck Griffith, from the 1st (Pembrokeshire) Volunteer Battalion, The Welsh Regiment, to be Lieutenant (dated April 1st, 1908). Lieutenant William Starbuck Griffith, to be Captain, with seniority below Augustine Griffith (dated Jan. 2nd, 1909).

VOLUNTEER CORPS.

Rifle: 4th Volunteer Battalion, The Norfolk Regiment: Surgeon-Major (Brigade Surgeon-Lieutenant-Colonel, Senior Medical Officer, Norfolk Volunteer Infantry Brigade) Charles A. O. Owens is granted the honorary rank of Surgeon-Lieutenant-Colonel (dated March 30th, 1908). Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel (Brigade Surgeon-Lieutenant-Colonel, Senior Medical Officer, Norfolk Volunteer Infantry Brigade) Charles A. O. Owens resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated March 31st, 1908). 3rd Volunteer Battalion, The Bedfordshire Regiment: The undermentioned officer, not having signified his wish to serve in the Territorial Force, is struck off the strength of the battalion (dated March 31st, 1908):—Surgeon-Lieutenant Nelson Johnstone.

VOLUNTEER OFFICERS' DECORATION.

The King has conferred the Volunteer Officers' Decoration upon the undermentioned officers of the late Volunteer Force, who have been duly recommended for the same under the terms of the Royal Warrant dated July 25th, 1892:—

Eastern Command.—Infantry (Volunteers): 1st Volunteer Battalion, The Essex Regiment: Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel St. Clair Brockway Shadwell (retired).

Scottish Command.—Royal Garrison Artillery (Volunteers): The Highland: Surgeon-Lieutenant-Colonel John Muro Moir. *Infantry (Volunteers):* 8th Volunteer Battalion, The Royal Scots (Lothian Regiment): Surgeon-Captain William Young. 3rd (Dundee Highland) Volunteer Battalion, The Black Watch (Royal Highlanders): Surgeon-Major William Kinnear.

Southern Command.—Royal Garrison Artillery (Volunteers): 1st Dorsetshire: Surgeon-Lieutenant-Colonel Augustus Kinsey-Morgan.

Western Command.—Royal Army Medical Corps (Volunteers): South Wales Border Bearer Company: Major John William Davies.

INDIAN HONOURS.

Surgeon-General Gerald Bomford, C.I.E., Director-General of the Indian Medical Service, has been promoted to a Knight Commandership, and Major Walter Hood Orr, I.M.S., Civil Surgeon of the Bohraich District, United Provinces, and Lieutenant-Colonel John Tasman Waddell Leslie, I.M.S., Sanitary Commissioner with the Government of India, have been appointed Companions, of the Most Eminent Order of the Indian Empire.

KING EDWARD VII.'S HOSPITAL FOR OFFICERS.

This hospital, which is situated at 9, Grosvenor-gardens, S.W., was founded by Sister Agnes in April, 1904, and is for regular officers of the navy and army and Indian army on the Active List, all of whom have been asked to become annual subscribers. The hospital is for surgical cases only and will be maintained as a free nursing home. There is no longer an honorary medical staff as the appointment was for five years only. Patients may now be treated by any member of the surgical staff of a London hospital. Prior to admission officers select their surgeons and make the necessary arrangements with them. Further information may be obtained from Sister Agnes, 9, Grosvenor-gardens, S.W.

ROYAL ARMY MEDICAL CORPS RESERVE.

A recent Army Order states that, with a view to augment the reserve of the Royal Army Medical Corps, it is proposed to invite transfers from reservists of the Infantry of the Line who have not less than two years to serve, the number not to exceed 1000. Reservists will be allowed to transfer to the Royal Army Medical Corps in the rank of private only, but will be eligible for promotion on completion of their three months' training, provided they pass the necessary examinations. A bonus of £2 will be given to each man who is accepted on joining for training.

Correspondence.

"Audi alteram partem."

THE EFFECTS OF LIGHTNING ON MEN AND THE LOWER ANIMALS.

To the Editor of THE LANCET.

SIR,—I hope you will allow me to make a few remarks on the above-named title of your interesting leader in THE LANCET of Jan. 2nd as I have had a good many opportunities at my present residence to form what I believe to be a good opinion of the subject founded on substantial facts. These facts make it almost certain that lightning acts as an explosive force and not by a sudden formation of steam out of water or moisture. From what we know, electricity in the air has a tendency to make vapour into water and this into ice, as seen in the frequent fall of hail in a thunderstorm. I believe the view which Oliver Lodge takes of electricity is more correct than the old one. Electricity was regarded as one of the qualities of matter rather than having inertia of its own and in the form of lightning constituting so much potential energy pent up in the clouds. This energy when dissipated produces as violent an explosion as if it were contained in gunpowder or dynamite. If this be correct, as I think it is, the passage of electric energy between two clouds or a cloud and the earth produces what is usually called an explosion. This is the reason why it causes such terrible havoc to buildings, paying often no heed to the neighbouring conductor. When, as I shall presently mention, the electrical inertia or momentum is held together or constitutes a fireball and is suddenly arrested it explodes like other forces. I was able clearly to demonstrate this in a lecture which I gave three years ago in connection with a fatal thunderstorm. On July 9th, 1905, during a thunderstorm on the Heath a young man and his little girl of four years old were instantaneously struck dead whilst standing under the shelter of a keeper's hut. A few hours afterwards I had an opportunity of examining their bodies and clothes. A long blackish-red streak ran down the right arm and body of the man; also a similar streak on the body and right leg of the child. They exactly resembled the effects of a burn. Corresponding to these in position were rents in the man's coat and flannel vest beneath, or what I believe is called an Oxford shirt, and similar ones in the child's stays or bodice. By a rent I mean simply torn; there was no longitudinal rent corresponding to the mark on the body, but the sleeve of the vest or shirt was lacerated in all directions; the threads passing down and crosswise were ruptured, more particularly on the outer part of the arm. The force which tore them came evidently from within and must have been of a most violent and sudden character. To produce this ragged bulging on another sleeve could only be done by an enormous pressure from within. In a similar way the child's foot, which was swollen and livid, had hanging on it a boot torn across the front. This in like manner could not possibly have been imitated except by a charge of dynamite being put within it. The late Sir Thomas Stevenson was pleased to show the coat and vest to his class, and these are now in the museum of Guy's Hospital. Many other examples displaying the explosive force of lightning I could mention, especially an old shattered elm tree on the Heath near Parliament Hill.

I may now allude to the so-called fireballs which I believe are masses of concentrated electricity in close association with watery vapour. They are seen generally running along on the ground or just above it, until they meet a house, a wall, or other obstacle when they burst like a shell and scatter ruin all around. If they fall on the ground they make a hole fusing the earth around, producing a fulgurite. These must not be confounded with meteorites and falling stars which are portions of mineral matter suddenly converted into vapour when entering the terrestrial atmosphere. In the Franco-British Exhibition mention was made of an exploding meteor. According to the description it applies to one of the last named. Probably some of these so-called meteors were merely fireballs and the dust from the explosion came from the object which was struck and not from the body itself. In the true meteorite I believe some special mineral is found.

We admit that lightning or electricity may have all degrees of concentration or dilution. There is the thundercloud where it escapes as a flash; then there is the more diffused form, as in summer lightning, silently passing from cloud to cloud; then as it is seen in St. Elmo's fire or perhaps in the aurora borealis. This, again, we can imitate by sending an electric spark through one of Crookes's tubes. The newspapers continually give us accounts of deaths and accidents from lightning and not infrequently some like those you mention where all the clothes are stripped off and carried to a considerable distance. It is difficult to understand how this can happen except by an explosive force, and if electric the effects might differ from special causes, as the skin and clothes being dry or wet; or from the direction of the current whether from above or below, as sometimes it has been shown that positive electricity has come from the earth.

Some time ago I heard from friends in a country town of a destructive thunderstorm where there was a farmyard surrounded by houses. A haystack stood near a wall through which was an opening and a narrow alley leading into a street. The lightning came down in this corner and struck the haystack in such a manner that the hay was driven up this alley or narrow passage, and so tight was the blockage that the hay had to be picked out bit by bit on the opposite side. Nothing but an explosion could have wedged it in this manner.

Last summer, at the time when the remarkable appearances occurred in the heavens, an account appeared in the papers of a house being struck (I think) in Norfolk. Amongst other particulars it was said that two maids who were in the kitchen at the time of the occurrence found themselves afterwards in a neighbouring passage. In a paper dated February, 1906, it says that a trawler *Redcap* of Aberdeen as she lay storm-stayed at anchor at Elwick, Orkney, was struck by a fireball or globular lightning. The crew, who were at the time seated in the cabin, were deafened and blinded by the explosion, followed by flashes of lightning, and the master received a shock in the arm. When they went on deck they found only two small splinters had been riven from the mast, but both compasses had been affected, for in whatever position the vessel turned they pointed S.E.

My principal object in writing this letter was to show that although a flash of lightning may strike an object in the manner usually described, yet that it has a destructive force in itself which can be called by no other name than explosive.

I am, Sir, yours faithfully,

Hampstead, Jan. 4th, 1909. SAMUEL WILKS.

THE NATURE OF DIABETES MELLITUS.

To the Editor of THE LANCET.

SIR,—The valuable lectures delivered by Dr. Pavy before the Royal College of Physicians of London and the paper by Professor Halliburton in your issue of Jan. 2nd afford much food for thought to those who are interested in this most elusive disease. It is impossible to honour too highly the courage and pertinacity with which Dr. Pavy has advocated and supported the view which he has been led to adopt as to the nature of diabetes; yet it is undeniable that in spite of the attention with which his writings have been studied, he has failed to convince the general scientific world of the truth of his theory. On the other hand, the glycogenic theory, as usually set forth, seems quite inadequate to explain the most characteristic feature of the human malady—the stage in which there is a formation of sugar from the cells of the body. Now

it seems that Dr. Pavy and Professor Halliburton agree that in the form of diabetes due to phloridzin there is a breaking down of the albuminous molecule with formation of sugar. Is it not possible to extend this explanation so as to cover all the phenomena of diabetes? If we postulate the existence of a poison acting somewhat similarly to phloridzin and splitting off a saccharine radicle from the protoplasmic molecule, such a substance will first attack loose combinations of sugar such as exist in the hepatic cells, which probably hold their glycogen attached by some mechanism analogous to Ehrlich's side chains and readily allow it to be split off. The poison would equally attack at an early stage a loose combination of sugar and protoplasm such as Dr. Pavy suggests (in the lymphocytes) as the vehicle for the carriage of sugar to the tissues. As, however, the disease advances and more of the poison is formed, its activities will not be confined to these loose compounds, but it will attack the other cells of the body, breaking off from them too a saccharine radicle. Now we know that the hepatic cells can give up and resume their glycogen without injury to themselves: such is their function. But to extract a molecule of sugar from other cells is probably impossible without destroying them. Thus it comes about that in the later stages of diabetes there is a destruction of protoplasm, with formation of those acetone bodies which are so characteristic of grave diabetes. I venture to think that the theory which I have sketched involves little hypothesis and harmonises many, at all events, of the phenomena of the disease.

I am, Sir, yours faithfully,

W. CECIL BOSANQUET.

HOUSE FLIES AND ENTERIC FEVER.

To the Editor of THE LANCET.

SIR,—Referring to the comments of your own correspondent in last week's issue, I may say that the windows of the dairy at the City Hospital for Infectious Diseases here have always been guarded with wire netting. As far as possible the milk bowls are kept covered with gauze, but at times these must be exposed, and when the doorway to the kitchens is opened then flies, like certain proverbial persons, *will* "rush in."

I am, Sir, yours faithfully,

HENRY E. ARMSTRONG,
Medical Officer of Health.

Health Department, Town Hall, Newcastle-upon-Tyne,
Dec. 22nd, 1908.

*** We regret the oversight by which this letter was not published last week.—ED. L.

FLIES AS A NUISANCE AND FLIES AS A "DANGEROUS NUISANCE."

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of Dec. 19th, 1908, p. 1834, you quote from Dr. W. H. Hamer's latest report his view that with regard to the carriage of the infection of diarrhœa "importance attaches, not so much to the number of carriers of diarrhœa organisms as to the extent of distribution of the organism itself."

Surely, Sir, both factors are of equal importance. My position is as follows, and I think it a logical one; I found it on various premisses.

1. *Diarrhœa is but a symptom*; it is an intestinal flux due to a variety of irritants or toxins. These irritants or toxins are chemical in nature and may be derived from various sources. They may be derived from mineral sources or they may be the result of biological processes—whether as pure vegetable alkaloids, or whether as living vegetative bacteria producing their toxins within the body itself. At any rate, diarrhœa is a prominent symptom in Asiatic cholera which is associated with Koch's spirillum or allied spirilla just as much as it is in summer diarrhœa. It is also an uncertain symptom in enteric fever, influenza, and other diseases. I have more than once expressed my belief that there is no one and only specific organism of summer diarrhœa. At one time or place Shiga's bacillus may be playing a prominent part; at another time the cholera bacillus, or the Gärtner bacillus, or the bacillus typhi abdominalis, *et hoc omne genus*.

2. The infection of diarrhœa is conveyed by way of the mouth (and almost invariably through contaminated food), but as shown by (1) the nature of the infection may vary.

3. The food must be infected by means of some agent or agents. (We have to decide whether infection most readily reaches food by way of dust or by means of flies or otherwise.)

4. Epidemic diarrhœa is distinctly a seasonal disease. Therefore the particular agent of infection must also be of seasonal prevalence. Dust is very prevalent in the spring, diarrhœa not so.

5. In local outbreaks after a case or two of diarrhœa have occurred a specialised form of organism is undoubtedly present in large numbers, having greater infective properties than prior to the development of any cases. On the assumption that these propositions cannot be denied, Dr. Hamer will find himself on the horns of a dilemma, for the extent of distribution of the diarrhœa-causing organisms must be greatest when the number of cases is greatest, and yet there follows a diminution in cases and mortality which cannot be explained, as he himself has shown in his previous report, by an "exhaustion of material" theory.

6. The fly curve as regards numerical prevalence and the diarrhœa curve as regards numerical mortality may not exactly correspond, but it cannot be gainsaid that they closely approximate.

I will assume that the foregoing propositions will be admitted on all hands. I will now repeat some of the conclusions I have previously recorded as the result of my own observations, and I should like to know if the observations of others who have also studied the question do not confirm them and support my deductions. 1. The fly season is the diarrhœa season (as a corollary—very few flies very few cases of fatal epidemic diarrhœa). 2. Entirely breast-fed infants are almost exempt from fatal epidemic diarrhœa. (Can flies settling on or in the mouth of a breast-fed infant be absolutely excluded in the exceptional cases?) 3. Fatal epidemic diarrhœa is almost entirely an infantile disorder. 4. Epidemic diarrhœa is almost confined only to those who drink milk.

Dr. Hamer lays great stress on the fact that judging by the numbers of flies caught the diarrhœa curve rose during a stationary period of fly prevalence in 1907, while during a similar period in 1908 it declined. But surely the main point to decide is not whether the flies were equally numerous during the period of diarrhœa declension as whether they were equally attracted to human food. After a certain period of existence flies still numerically abundant pay less attention to (human) food and are more busily engaged in courtship and in obeying reproductive instincts. The meteorological conditions are of great importance. If unfavourable, whether by reason of wet or of cold or both, flies do not peregrinate to the same extent. Therefore, though they may be equally numerous in the house (as judged by the fly-catcher) few, if any, fresh importers of bacteria come into the house. Flies are also peculiar in some of their habits. At certain times they congregate for hours together in a warm corner, apparently indifferent to food. The relation of flies to diarrhœa cannot, then, be decided solely by means of fly papers, though the elaborate observations of Dr. Hamer are of great interest and importance. One thing I am certain of is that flies in London, which is a water-closet city, are not so dangerous as flies in Midland and other privy towns.

The place of development of musca domestica, which is the fly found in houses in over 90 per cent. of the observations made (my own observations give considerably over 95 per cent. and convince me that other flies such as homolomyia canicularis are almost negligible), is in my opinion of considerable importance. In order of importance in considering the fly as a carrier of dangerous germs I would place its chief breeding places in the following order (1) midden privies or night-soil deposits and (2) house refuse (because both often contain specific organisms); and (3) manure. As regards food, milk is undoubtedly the most important article, because a single fly falling into milk and having its whole body, wings, legs, and proboscis continually laved in the milk, assisted by its vigorous attempts to escape, must give rise to 20 times as much pollution as a dozen flies which merely settle on solid food. In fluid milk bacterial contamination proceeds apace, growth being undoubtedly slower in solid food.

The temperature of the air of the room is of great importance, controlling as it does to so marked a degree the multiplication of germs conveyed to milk by flies or otherwise in hot weather; one polluting fly may contaminate more in a

given time than two or three flies when the temperature is some degrees colder. This is a most important point to bear in mind, because the numerical prevalence of flies may be stationary and the number even visiting food may be approximately the same, yet the multiplication of bacteria is greatly lessened by a reduced temperature. If the reduction of the temperature is considerable (for instance, if the temperature of the room is below 50° F.) flies become very sluggish and congregate in the warmest corners, which they do not leave unless the temperature is raised. Nothing is more destructive of fly life than a sharp frost, and no measures of control hitherto devised will have so marked an effect in the reduction of diarrhœa or cholera as the advent of frosty weather. Now, germs are not destroyed by frost but the carriers are. The abatement of the epidemic influence by frost is not confined to cholera and diarrhœa but has been noted in connexion with the incidence of other diseases attributable to the agency of flies of some kind—such, for instance, as yellow fever.—I am, Sir, yours faithfully,

J. T. C. NASH, M.D. Edin., D.P.H.,
Dec. 23rd, 1908. County Medical Officer of Health of Norfolk.

EPSOM COLLEGE.

To the Editor of THE LANCET.

SIR,—I have just read your remarks about Epsom College and also Mr. Henry Morris's letter and I feel sure now that the urgent needs are so ably and concisely put before the profession on behalf of the pensioners and foundation scholars that more of the 40,000 on the Medical Register will certainly send their names in to the treasurer or secretary and become annual subscribers and bring the number up to at least 5000 or more, and not leave it to the insignificant and paltry list of only, as at present, a little over 2000 annual subscribers. The council ought to be relieved of the great anxiety it must cause them to get the necessary amount, £7000 a year. It would be indeed a great pity and a disgrace to our profession if we cannot manage to keep up this annual sum and try yearly to increase it and do all we can to help our poorer members in their distress. I do hope Mr. Morris's urgent letter will touch their hearts and bring in fresh annual subscriptions. I myself am going to commence with £1 1s. and hope others will follow.

I am, Sir, yours faithfully,
Jan. 4th, 1909. W. CUNNINGHAM CASS.

To the Editor of THE LANCET.

SIR,—The apathy of the profession to Epsom College and other charities is too deep to be ascribed by the most charitable mind to "lack of thought or need of being reminded." For many years I have worked hard; for at least ten years I myself sent appeals on post-cards to every medical practitioner in my neighbourhood, many hundreds in all, and the response amounted to something less than 10 guineas, and in place of medical contributors my usual list consisted during that time of a parson, a widow, a retired general practitioner, his wife, and myself; and even now my most keen supporter is a devoted monthly nurse who persuades contributions from her patients to help the orphan of one of her former employers.

For the last few years I have been able to collect more from the profession, perhaps because I am older and others are younger, but chiefly because my appeals have been personal more often than epistolary, so that a refusal is less easy; but it is disheartening work, and expensive too, as each donation obtained averages the outlay of two stamps, two envelopes, two sheets of notepaper, and an appreciable amount of work and time; whilst each refusal involves half that expenditure plus disappointment and vexation. No, Sir, it is neither "lack of thought" nor "need of being reminded," and were it not that our wealthier brethren are equally ungenerous I should believe it to be actual poverty. Can it be helped? After many years of consideration I believe that the method of distribution of the funds collected may be partly responsible; the subscribers have no certainty that their donations will help those they wish to benefit. It was shown, years ago, that the cost of an annual canvassing for votes often exceeds the cost of a year's schooling; while at the end, as Mr. Morris says, the candidate may fail and be left unaided, so great is the competition, so terrible are the numbers and straits of the applicants!

Is it not possible that of these also the bulk of the profession is unconscious? Regular subscribers can, and do, learn something by a perusal of the voting papers, but, as they are never published broadcast, how many outsiders can dream of lady mothers who maintain their children by domestic and even more menial work? of worn-out widows, children, even medical men themselves barely kept from the workhouse? of the many who are there or in hopelessly worse plight? Cannot you, Sir, in these times of great charity to the hospitals arouse the worshippers at the *renaissant* shrine of Æsculapius to the fact that, while the temples are enriching, the priests, like those of most other religions, are starving? Cannot you point out that some help is needed by, and due to, those who have devoted their lives and given their not inconsiderable mites of wealth and health for the general good without thought of personal thrift or future gain? Cannot you point out that, in the words of the late Sir Andrew Clark, "the orphans of the profession should be the charge of the public"?—I am, Sir, yours faithfully,

Dec. 29th, 1908. HONORARY LOCAL SECRETARY.

RELIGION AND TREATMENT.

To the Editor of THE LANCET.

SIR,—Surely the time has arrived when the medical profession should make some effective and organised protest against the ever-growing systems of so-called religious treatment which are now so much in vogue. Medical men are nowadays fully aware of the potentialities of suggestion in the treatment of functional disorders, and know quite well that suggestion can be brought to play through the medium of pseudo-religious formulæ, which accounts for the temporary relief sometimes obtained from these systems. Hence it is obvious that any case cured by such means could readily have been cured by a regular practitioner who understood the uses of suggestion in treatment. Would it not be possible to form a committee or association which should have for its chief object the instruction of the public in the fallacies of such systems of irregular practice, without the traditional principles of the medical profession being thereby violated? I am, Sir, yours faithfully,

Harley-street, W., Dec. 28th, 1908. EDWIN ASH.

HOMOGENEOUS IRRADIATION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Dec. 5th, 1908, p. 1679, under "New Inventions," there is a note to the effect that Dr. *Holzknecht* of Vienna is the inventor of a method of irradiating with Roentgen rays deep-seated tumours effectively without burning the skin. However, the fact is that he is not the inventor at all of this method of "*homogeneous irradiation*" as it was named by its real inventor—viz., *Friedrich Dessauer*. *Dessauer*, a physicist and director of a manufactory of x ray and electrical apparatus at Frankfort on the Main and Aschaffenburg, invented the method referred to above and in the note mentioned, entirely independently, and published it in a *detailed* article in the *Medicinische Klinik*, Nos. 21 and 22, as early as 1905!

It is true that at the last Roentgen Congress at Berlin last spring Dr. Holzknecht read a paper on the subject. But Dessauer promptly replied, claiming the priority for himself and, in fact, proving beyond all doubt that *he is the actual inventor*. This is an absolute fact which is easily shown as such by simply enumerating the literature on the subject. Moreover, in the controversy which ensued on Dr. Holzknecht's communication to the Roentgen Congress Dessauer remained ultimately unrefuted.

I give Dessauer's communications on the subject:—"Beiträge zur Bestrahlung tiefliegender Prozesse" (*Medizinische Klinik*, Nos. 21 and 22, 1905). "Eine neue Anwendung der Roentgenstrahlen" (*Verhandlungen der Deutschen Physikalischen Gesellschaft*, IX. Jahrgang, No. 3, 1907). "Eine neue Anordnung zur Roentgenbestrahlung" (*Archiv für Physikalische Medizin*, &c., Band. ii., Nos. 3 and 4, 1907). "Eine neue Anwendung der Roentgenstrahlen" (*Münchener Medizinische Wochenschrift*, No. 24, 1908). "Zur Frage der Homogenbestrahlung" (*Deutsche Medizinische Wochenschrift*, No. 40, 1908). F. Dessauer and Dr.

Max Krüger: "Die Nachbehandlung operierter Carcinome mit homogener Bestrahlung" (*Berliner Klinische Wochenschrift*, No. 11, 1908). Besides these there are various smaller communications.

I am, Sir, yours faithfully.

Bad Nauheim. PAUL C. FRANZE, M.D.,

TREATMENT BY FERMENTED MILK.

To the Editor of THE LANCET.

SIR,—It would seem that many practitioners are using fermented milk in the treatment of patients and reports that are published up to the present time deal only with those cases in which a greater or less amount of success has been obtained. Mr. Tubby in his paper dealing with some successful cases in THE LANCET of Dec. 26th, 1908, p. 1865, says: "It is curious that while one of the by-products of bacillus coli is lactic acid yet milk fermented either with bacillus of Massol or bacillus acidi lactici is inimical to colon bacillus." I am writing you to draw the attention of those working at this subject to a little point which may have a bearing upon the matter. From questions I have asked of other medical men and chemists it does not seem to be generally known that there is more than one lactic acid—viz., a dextro-rotary, a lævo-rotary, and a neutral form according to its action on polarised light, and I suggest it is possible that these different forms are produced by the different milk ferments and, again, that the bacillus coli is adversely affected by one form and not by another. For "the mere fact that penicillium glaucum is capable of destroying one form in preference to another—d-lactic, for instance, compared with l-lactic acid—is an indication that molecules of one type have a closer connexion with the cells of that particular form of life than the other." The quotation is from pp. 6 and 7 of "The Chemical Basis of Pharmacology," by Professor F. Francis and Dr. J. M. Fortescue-Brickdale, which is the only source of information at my disposal. I believe that the explanation given of the action of the fermented milk in the human intestine is that the harmless bacillus introduced grows apace and crowds out the putrefactive bacillus; if that be correct the rôle of the lactic acid produced may seem to be of minor importance, yet it is a drug which some of us have been in the habit of using for many years and have imagined, perhaps, that our patients benefited thereby, though also it has frequently disappointed us. However, I am not capable of either discussing questions of stereochemistry or of investigating the point for myself, but I hope that some of those who have laboratories at their command and time to work in them will go into the matter. I might perhaps add, though apart from the precise object of this note, that I am informed that commercial lactic acid is neutral in its action on polarised light.

I am, Sir, yours faithfully,

LEWIS G. GLOVER.

Belsize-park, Hampstead, N.W., Dec. 26th, 1908.

THE CLINICAL AND POST-MORTEM ASPECTS OF THE STATUS LYMPHATICUS.

To the Editor of THE LANCET.

SIR,—Since the publication of my paper on this subject in THE LANCET of Dec. 26th, 1908, it has occurred to me that the word "properly" on p. 1873, line 49, might be misconstrued as a "covering proviso." In view of such a possible misunderstanding may I be allowed to state my reasons? The adjective is inserted for the purpose of eliminating all such sources of trouble is those due to (*a*) non-recognition or non-observation of the quickly approaching fourth stage; (*b*) the administration of a sudden overdose during the first and second stages; (*c*) asphyxial catastrophes—caused by the obstruction of any foreign body in the larynx, the regurgitation of vomited matter or blood *viâ* the trachea and bronchi, or any other of the various mechanical impedimenta to respiration. When it is ostensibly realised that a patient's general condition is *in extremis*, and yet nevertheless an immediate operation holds out the only possible, though very slender, chance of recovery, under such circumstances as these if a fatality does occur while under the influence of a general anæsthetic, though usually it does not, the disaster cannot fairly be in any way attributed to the anæsthetic. In a case of this kind probably chloroform is much safer than ether, as it is the "heart" primarily that is failing to go on with its work, and the former diminishes the amount of work it has to do by lowering the general blood pressure, and does not, like the latter, stimulate it (a mistake, since the heart is temporarily, at all events, in an analogous position to a tired-out horse). There are occasions, too, where the general condition is manifestly very bad, and yet the full gravity of the situation is scarcely recognised and an exploratory laparotomy is attempted with a view to investigating some obscure, ? malignant, tumour. Here a small amount of shock might, in the lighter stages of anæsthesia, give rise to a fatal termination. Again in diphtheria a well-marked acute fatty degeneration of the heart is often found, and a sudden fatal syncope has not infrequently been known to occur in consequence; hence it is conceivable that a child, while slightly struggling in the initial stage of chloroform anæsthesia, might succumb from this cause—the chloroform being administered for the purpose of performing tracheotomy on account of laryngeal implication. Here the chloroform is instrumental by being the exciting cause of the struggling. The coincident rupture of the heart, or of an aneurysm, under similar circumstances is perhaps too rare to require consideration. Some authorities agree that death can take place during the administration of anæsthetics in certain rare hysterical or closely allied conditions. Lastly, there is without doubt such a thing as "a chloroform idiosyncrasy," but this must be uncommon, and very little mention is ever made of it. Cases of delayed chloroform poisoning, with excess of acetone in the system, seem to be directly due to the narcotic, but death, if it occurs at all, does not happen at the time of the administration.

I am, Sir, yours faithfully,

Reading, Dec. 24th, 1908. R. ERNEST HUMPHRY.

THE TRYPSIN TREATMENT OF CANCER.

To the Editor of THE LANCET.

SIR,—In the review of work during the past year under the heading of Cancer in THE LANCET of Dec. 26th, 1908, p. 1892, it is stated in the report of Dr. J. E. Weinstein on the trypsin treatment of ten cases of malignant disease of the abdominal organs that "amylopsin was injected also as advised by the introducers of the trypsin treatment. The amylopsin is used on the theory that the trypsin, in acting on the cancer proteins, produces poisonous substances which the amylopsin digests." Apart from the fact that the treatment of inoperable cancer by trypsin injections and pancreatic preparations, oral and local, was introduced by myself in the columns of THE LANCET, independently based and commenced on a pancreatic and nutritional theory,[1] I would ask you to permit me to point out that the importance attached subsequently to amylopsin by others (in opposition to my suggestion that trypsin acted on the proteid-carbohydrate, glycogen) and the additional recommendations of amylopsin injections are not mine, any more than the theory of its action given in the above.

So far from suggesting any action of amylopsin on the poisonous products of trypsin on cancer proteins, on the contrary, I drew attention to the associated action of the pancreatic, intestinal, and liver secretions, and more especially to the ferment, erepsin,[2] chiefly contained in the intestinal mucosa (Cohnheim), but common to all organs and tissues (Vernon), a ferment which especially acts on peptones, the product of trypsin and pepsin on native proteins.

I am, Sir, yours faithfully,

Dec. 30th, 1908. J. A. SHAW-MACKENZIE, M.D. Lond.

[1] THE LANCET, Feb. 11th, 1905, and Jan. 14th, 1905.
[2] Brit. Med. Jour., March 24th, 1906.

HOSPITAL FOR SICK CHILDREN.—The course of lectures and demonstrations at the Hospital for Sick Children, Great Ormond-street, will commence on Thursday, Jan. 14th, at 4 P.M., when Mr. W. Arbuthnot Lane will lecture on Fractures in Children. Weekly lectures and demonstrations will be given on Thursdays at 4 P.M. Dr. G. F. Still will lecture on Jan. 21st on Some Morbid Habits in Children. The lectures are free to all qualified medical practitioners.

SANITATION IN INDIA.

THE PREVALENCE OF ENTERIC FEVER AMONGST BRITISH TROOPS IN INDIA.

(FROM A SPECIAL CORRESPONDENT.)

II.[1]—*Prevalence amongst Abstainers and its Relationship to Age and Length of Service.*

IN order to be in a position to set in motion active prophylactic measures against any disease, its distribution, geographical and otherwise, including its prevalence amongst individuals, must be carefully ascertained. Prophylaxis to be of value should take into consideration all elements or sources of infection, and each and every link of this chain should be carefully examined. In a campaign where absolute success is aimed at each source of infection must be taken up and cut off in detail. It is for this reason that the question of the distribution or prevalence of enteric fever amongst individuals rather than collections of people or communities becomes important, as by dividing up communities into classes according to sex, profession, trade, occupation, and habits of life, and examining the relationship it bears to each section and subsection of the community, a clue may arise whereby an explanation as to the causation of the disease amongst the community at large is afforded. Once the reason or cause on account of which the individual or classes of individuals contract any particular disease is known, active measures of prevention can be set in force and the disease should certainly be reduced if not entirely guarded against. In presenting the following notes an attempt is made to collect data for consideration rather than to arrive at any hasty conclusion.

Total abstainers.—As various assertions have been expressed from time to time of the greater immunity of abstainers (teetotalers) from enteric fever over non-abstainers, the following figures showing instances of the disease amongst these two classes in a few stations in India where records are available will be of interest. Of 84 cases of enteric fever occurring at Rawal Pindi it is noted that 53 of the patients were beer drinkers and 31 abstainers. Of four cases occurring at Kuldana, three were total abstainers; of 18 cases at Sialkot, seven were total abstainers, and three of them died. Four abstainers contracted enteric fever at Bareilly, and two of them died. At Bangalore, out of 73 admissions, 32 were teetotalers. A certain eminent practitioner once stated that the majority of cases of enteric fever that followed a banquet occurred amongst teetotalers and expressed the opinion that this was due to the fact that a weak solution of alcohol was sufficient practically to destroy the typhoid germs. This expresses rather a sense of humour than fact, for if we treat the subject seriously it may be stated that although the alcohol has certainly considerable bactericidal effects it is extremely improbable that in the very dilute form in which it is likely to be found in the alimentary tract this power is retained to any appreciable degree. As the above assumption is often entertained by officers on service or in pursuit of sport, shooting expeditions, &c., it is well emphatically to remind them of its fallacy and to state clearly that our main safeguard against bacterial infection introduced by means of food or drink consists rather in maintaining good health and corresponding healthy secretion of gastric juice than in taking alcoholic drinks, and that it would be unwise medicine and bad physiology to rely upon alcohol as an intestinal antiseptic.

Age and recent arrival.—The predisposing influences of youth and recent arrival in India of the young soldier are too well known and recognised to require lengthy comment. They have been pointed out in every Army Medical Department report since 1872. In India, as in the tropics, the young European is more liable to attack by enteric fever, and the disease is more fatal in its effects than is the case in a temperate climate. Each trooping season brings a fresh number of susceptible individuals to India, and to this circumstance more than any other is due the steady annual increase of enteric fever of late years among the British troops in this country. The period of greatest liability to attack in men is between 20 and 25 years of age. In support of the view that steady prevalence is largely due to an increased supply of susceptible individuals the following figures and facts are of great importance: (*a*) In 1878 35 per cent. of the British troops in India were men under 25 years of age; the admission rate for enteric fever in this year was 6·0 per 1000 of strength. In 1898 there were 50·3 per cent. of men under 25 years of age, and the admission rate for enteric fever was 47·0 per 1000 of strength. (*b*) Again, owing to the short service system the men are more frequently changed, which leads to their constant renewal by men of the susceptible age and a consequent still further increase in the number of the men likely to contract the disease. In 1898 71·4 per cent. of the total admissions and 73·39 per cent. of the total deaths from enteric fever occurred amongst men between 20 and 25 years of age, and out of every 100 men under a year in India 9·15 contracted enteric fever, and of these the mortality was 2·43 per cent. Furthermore, 44·5 per cent. cent. of the total admissions for enteric fever, and 43 per cent. of the total deaths from it during 1898 occurred among men who had been less than a year in India. In the same year men in the second year of service in the country yielded 17·9 per cent. of the total cases and 16·8 per cent. of the total deaths, while it will be seen that as the years of service in the country increase the admissions and mortality rates show steady diminution, susceptibility lessening as the soldier becomes acclimatised.

In 1899, 74·0 per cent. of the admissions and 73·27 of the deaths occurred between 20 and 25 years of age. In 1900, 61·2 per cent. of the admissions and 60·9 of the deaths belonged to the same age-group. In 1902 the causation of the increase that took place in the number of admissions for enteric fever, occurring as they did for the most part in young soldiers during their first year's service in India, was attributed to the arrival of large drafts and reliefs from active service in South Africa. Many of these men having been under the conditions of continuous field service for two or more years were no doubt most susceptible to any source of infection.[2] The increase in the number of men of the most susceptible age will account for an increase in the actual number of admissions, and the more the cases the greater the probability of further infection. This was prominently brought to notice in 1902 as contrasted with the previous year.

In 1901, during the war in South Africa, there was a great diminution in the number of men of the susceptible age, and a retention in this country of mature and seasoned soldiers and time-experienced men and consequently the prevalence of enteric fever was much reduced and the admission ratio of men in all the different age-periods showed a decrease accordingly, which was especially noticeable among men under 25 years of age. In 1902, on the other hand, we had, owing to drafts and reliefs, a large number of men in India for their first year's service and naturally there is an increased admission ratio, it being 50·4, as compared with 37·8 per 1000 in 1901 and 30·4 in 1900. For the same reason we had an increase in the admission ratio in the men between 20 and 25 years of age—viz., 28·0 per 1000, as contrasted with 18·6 in 1901—men of this age-period for the most part coming from South Africa. As after any campaign reaction is bound to occur amongst men, and this was noticeable in many of the regiments arriving from South Africa in 1902, as the majority of the men had deferred pay and *batta*, precautions against sun and climate were neglected by men foolishly comparing the South African with the Indian climate. Bazaars were much frequented, the result being an increased prevalence of the disease. Some medical officers attributed the occurrence of enteric fever to importation of the disease from South Africa, but this is doubtful, and if it did occur at all it was in very few cases.

The increased susceptibility of young soldiers and recent arrivals in India is probably due to a combination of the following causes: (*a*) The normal or physiological susceptibility of Europeans to contract enteric fever in all parts of the world, at a more or less fixed age—namely, 20–25 years. (*b*) The special tropical susceptibility caused by changes brought about by the transference from a temperate to a tropical climate weakening the resisting powers of the

[1] No. I. was published in THE LANCET of Jan. 2nd, 1909, p. 62.

[2] Some observers state, on the contrary, that such men should rather be more immune to enteric fever infection; experience, however, proves that this is not the case, a view which has been strongly supported by Sir Thomas Gallwey, Principal Medical Officer to the Forces in India.

tissues and their antibacterial or phagocytic properties. These katabolic changes often manifest themselves by catarrh of the respiratory or digestive tract, causing slight bronchitis or diarrhœa respectively. Both these conditions greatly favour the entrance of the enteric fever bacillus to the blood, either through the respiratory tract or through the digestive tract by means of food or liquids. (*c*) Want of experience, and therefore want of care, in regard to diet, exercise, and general care of the health, with the result that the men get out of condition and consequently become more liable to develop disease; while they are also more likely to be careless as to the sources of drinks and food which they may partake of outside barracks. (*d*) Other predisposing causes: (1) over-fatigue, over-exertion, and exposure to the tropical sun with an empty stomach, such as rifle range or shikar in the morning without *chota hazri* (early breakfast); (2) any form of debility; and (3) any form of catarrh of the intestines or air passages.

The young are particularly predisposed to contract the disease; nevertheless an organism healthy and vigorous, hardened by exercise, and fed on good nourishing food, possesses the power of resistance in a marked degree.

(To be continued.)

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary.

THE funds of the Cardiff Infirmary have benefited to the extent of 5000 guineas, which sum was received on New Year's Day from Mr. W. J. Thomas, J.P., of Ynishir, in the Rhondda valleys. The money will be used to endow a ward to be known as the William James Thomas ward. Mr. Thomas inherited a few years ago large colliery properties from his grandfather and has shown, not only by this but by munificent donations to other institutions as well as to the infirmary, that he realises the responsibilities attached to the possession of great wealth. With the completion of the additional wing, which is now building, there will be accommodation in the infirmary for 70 more patients, raising the total accommodation to 260 beds. The £30,000 required for the new buildings have already been subscribed and a strenuous effort is being made to increase the annual income, for it is estimated that at least an additional £7000 will be required yearly to support the completed institution. Mr. John Cory has offered one fourth of the total amount subscribed during the next two years.

Locked Milk Churns.

Among the difficulties which the dairy farmer who desires to send good milk to his customers has to contend with is the refusal of the railway companies to permit the churns which are used to convey the milk to be locked. If the railway companies would guarantee that the milk should not be tampered with while in their custody the farmers would doubtless be satisfied. The question was discussed in March last with the President of the Local Government Board by a joint committee of the Central and Associated Chambers of Agriculture, who expressed the opinion that the liability of consignors of milk should cease when the milk reached the consignee's hands, which meant in the case of delivery by road on arrival at the consignee's premises, and in the case of delivery by rail on arrival at the station at which it was consigned. At the same interview the committee urged the necessity for requiring that milk should not be conveyed in vans containing other articles likely to contaminate it. One farmer stated that he had seen crates containing live fowls placed on the top of milk churns in a railway van and round the churns were packed raw hides. Mr. Burns appeared to be impressed with the facts put before him and intimated that some remedy ought to be found for the dangers associated with improper methods of transit. It would appear, however, that in the opinion of the permanent officials of the Local Government Board that remedy is not to be found in adopting and enforcing suitable regulations under the Dairy, Cowsheds, and Milkshops Orders, for they have refused to allow the Festiniog town council to include in their new series regulations requiring locks to milk cans and prohibiting the conveyance in a milk cart of anything other than milk or any other person besides the vendor.

Pontypool Epidemic of Enteric Fever.

One of the results of a severe epidemic of enteric fever which occurred in the autumn months of 1906 in the urban districts of Abersychan, Panteg, and Pontypool was a claim for damages by several of the sufferers from the Pontypool Gas and Water Company, whose water-supply was alleged to have been the initial cause of the outbreak. The company has now admitted liability and has paid over the sum of £4500 to be divided by the district councils amongst those who have sustained damage. After the report of Dr. R. W. Johnstone on behalf of the Local Government Board into the circumstances attending the outbreak it is not at all surprising that the company should have decided upon this course. The company's supply is obtained from various springs and was augmented at certain periods with water from a spring situated at the gas-works. In Dr. Johnstone's opinion this spring was the cause of the mischief, at any rate in Pontypool, though there is no doubt that personal infection played a prominent part in the spread of the disease in the later weeks of the epidemic. The aggregate population of the three districts concerned was about 33,000 and there were attacked a total number of 276 persons living in 188 houses. It is satisfactory to find that the waterworks company has deposited a Bill the provisions of which will enable it to increase materially its existing sources of supply and empower it to construct a storage reservoir. In the summer months of 1905 there were many complaints of the scarcity of water within the area of supply of the company and at that time the district councils sought expert advice as to the best method of increasing the supply.

Death of Mr. Griffith Griffiths, M.R.C.S. Eng., L.R.C.P. Edin.

Through the death of Mr. Griffith Griffiths of Pontardawe the medical profession in the Swansea district has lost one of its oldest and most respected members. He was born in the year 1839, the son of a Congregational minister, and after studying at University College took his M.R.C.S. Eng. in 1864, several years later obtaining the L.R.C.P. Edin. He was on the commission of the peace for the county of Glamorgan, one of the Poor-law medical officers for the Pontardawe union, and certifying factory surgeon. For many years he was surgeon to extensive collieries in the neighbourhood.

The late Dr. Emily Eberle.

The honorary treasurer of the "Dr. Emily Eberle Memorial Fund" announced last week that the subscription list is now closed. £509 have been received and this sum has been invested under a trust deed and the income will be applied to the support of a bed in the "Bristol Private Hospital for Women and Children," Berkeley-square, Clifton, for the benefit of patients attending the Read Dispensary for Women, St. George's-road, Bristol.

Jan. 4th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Royal Infirmary: Memorial to the late Miss Spencer.

THE managers of the Edinburgh Royal Infirmary some time ago decided to place in the infirmary chapel a memorial tablet to the memory of the late Miss Spencer, lady superintendent of nurses. The tablet was unveiled on Dec. 31st last. A short religious service preceded the unveiling. The service was conducted by the Rev. R. H. Henderson, chaplain to the infirmary, and all who were present must have recognised the appropriateness, the good taste, and the high tone that gave impressiveness to the service. Mrs. Kerr, one of the lady managers, spoke a few suitable words before uncovering the tablet.

Teaching of Clinical Surgery in Edinburgh.

Some weeks ago reference was made in THE LANCET to overtures made by the University Court to the ordinary surgeons to the Royal Infirmary with a view to making them University lecturers. Two of the three surgeons—namely, Mr. J. M. Cotterill and Mr. J. W. B. Hodsdon, have come to terms with the University authorities and have been appointed University lecturers and examiners in clinical surgery. This ought, by broadening, to strengthen the foundations of the clinical work

required by the University, while it does not interfere in any way with the liberty of the ordinary surgeons as to teaching students who are preparing for the triple qualification and not for the University degree. It is difficult to see how an extension of the same plan would do anything but strengthen the University. The time is past for the belief that clinical teaching can be efficiently carried out by talking to a large number of students seated within sight of a bed, and if that be correct the professor-physicians are not numerous enough for the number of students. The fact is that for years past the University has been powerfully upheld by the members of the extra-mural school who are physicians and surgeons to the infirmary. Edinburgh as a medical school could not have retained her attractiveness had the University not been supported by the excellence of the extra-mural clinical teaching and work. As has been said before, it is doubtful whether the extra-mural school has anything to gain by the closer association of its clinical teachers with those in the University, but, as stated above, it is difficult to see that such arrangements would do anything but strengthen the University.

Appointment of Assistant Surgeon at the Edinburgh Royal Infirmary.

The vacancy on the surgical side of the Royal Infirmary caused by Mr. C. W. MacGillivray's retirement has been filled by the appointment of Mr. John W. Struthers as assistant surgeon. Mr. Struthers is an assistant surgeon at Leith Hospital and is a son of the late Sir John Struthers, professor of anatomy in the University of Aberdeen. Mr. Hodsdon has now charge of wards to which male students only are admitted, while Mr. David Wallace has become a full surgeon in charge of wards set aside for the education of women students.

The Royal Medical Society, Edinburgh.

Invitations to the annual dinner given by the presidents of this society have been issued for Feb. 9th. Principal Sir Donald MacAlister, K.C.B., of the University of Glasgow, will be the guest of the evening.

Death of Mr. J. S. Butter, M.B., C.M. Aberd.

The death took place on Dec. 20th, 1908, of Dr. John Soutar Butter of Downfield. For some time his health had been far from robust and for a few weeks previous to his death he had been entirely confined to his house. Dr. Butter graduated M.B., C.M., with honours, at the University of Aberdeen in 1887 and a few years later started practice at Downfield. He was medical officer to the Baldovan Orphanage and to the Mains and Strathmartin parish council. He took a keen interest in all forms of athletic sports and was at one time captain of the Baldovan club. He is survived by his widow and one daughter, towards whom in their bereavement much sympathy is being extended. The funeral took place on Dec. 23rd, the place of interment being the Eastern Necropolis.

New Infirmary for Perth.

At a special meeting of the directors of the City and County of Perth Royal Infirmary held at Perth on Dec. 21st last it was unanimously resolved to proceed with the erection of a new infirmary, to consist of 100 beds at an estimated cost of £400 per bed. Mr. Charles A. Murray of Taymount, who occupied the chair, explained that the meeting had been called for the purpose of considering the remit from the last meeting of qualified subscribers and contributors held on Sept. 30th to submit a scheme for the erection of a new infirmary on a new site, and also the offer of Sir Donald Currie of Garth contained in his letter of Nov. 28th. Mr. Murray, with the consent of his seconder, in the altered circumstances, intimated that he would withdraw a motion of which he had formerly given notice. Lord Provost Cuthbert then moved that the directors instruct the secretary to inform Sir Donald Currie that they exceedingly regret that they do not see their way to accept his offer on account of the time limit imposed by him, and his condition as to the appointment of an architect; that subject to the approval of the subscribers, and in view of the replies received to the circular issued by the treasurer, the directors resolve to erect a new infirmary on the site offered by the Glover Incorporation at Tullylumb to consist of 100 beds at an estimated cost of £400 per bed; and that the chairman and deputy chairman be requested forthwith to issue a circular appealing for £10,000, being the sum still required to complete the scheme, principally in consequence of subscriptions originally dedicated for reconstruction being found to be not available for the scheme now adopted by the directors. The motion was agreed to unanimously.

Christmas Gifts to Dundee Infirmary.

Dundee Infirmary has received a handsome Christmas present in the shape of two cheques for £500 each, one from Sir William Ogilvy Dalgleish, Bart., the president of the institution, and the other from Mr. William Rettie, the chairman of the directors. The two cheques are intended to assist in making up the large deficit of nearly £3000 with which the accounts of last year closed. Workers' contributions to the infirmary for the past year amounted to £2716, as compared with £2658 for the previous year. The expenditure for the year was £15,785, as against £12,838 during 1907.

Jan. 5th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Anti-tuberculosis Legislation v. Celtic Prejudice.

THE recent (and still progressive) anti-tuberculosis legislation is very naturally now in receipt of a preference share of the discussion allotted to medical matters in public and in private. I was glad to see that one medical correspondent of the daily press thought it desirable to point out to his readers in this connexion that Ireland is *not* "the terrible plague spot which all the talk about it would lead one to suppose." This is shown by a well-selected comparative table of the death-rates per 1000 for all forms of tuberculous diseases in England, Scotland, and Ireland respectively:—

	1864	1906.
England and Wales	3·3	1·6
Scotland...	3·6	2·1
Ireland	2·4	2·7

The variety of opinions as to "how the Act will work" continues to display the same effervescent phenomena, and it is surely all the better that the various views should be thoroughly ventilated. It is a fact which must be dealt with by all parties who endeavour to improve Ireland by new methods of legislation, that whether it be our fault or our misfortune, or—as many of us would fain suggest, our extra quantum of spirituality—the peculiarities, prejudices, and old-time conventions of the Irish Celt will in the long run have a much greater influence on the effect of the new Act than any mere considerations of physical betterment and hygienic purity. As a correspondent of the *Freeman's Journal* truly says:—

> Country practitioners in Ireland, and especially in Connacht, are familiar with the fact that the people have the greatest aversion to publicity in connexion with illness. They will carefully conceal the presence of fever of any sort; and be very angry indeed with a doctor who dares to suggest that any of their household has a "strange" (i.e., infectious) sickness. And they would do almost anything sooner than have it go abroad that they were tainted with such maladies as consumption, insanity, or epilepsy. The reason is that such a repute would be fatal to the matrimonial prospects of the other members of the family.

But, as the writer himself afterwards shows, there is another "reason" and one more immediately pressing:—

> If the "neighbours" hear that the house was disinfected, they naturally conclude that there must be danger of infection; and once they get that idea into their head, one of them would never enter the infected house. The unfortunate people in whose house the consumptive was would be absolutely shunned; and this is one of the results of infectious disease that they most dislike.

I do not undertake to defend the practical prudence which is based on such views, but I think it my duty to indicate their very vital existence which does not seem to be generally known to the majority of our legislators.

A Record in the Annals of Christmas Casualties.

The accident record of Jervis-street Hospital has always been one of the most prominent of the items of our Dublin surgical annals. The institution occupies a position specially favourable for securing the patronage of "holiday" and "Saturday night" patients. From small beginnings it has gradually expanded to its present position of one of our most popular and up-to-date institutions. An interesting item of its early history is supplied by the fact that it was utilised as a teaching institution just a century ago; systematic courses on medicine and surgery were founded, a library was formed, and a dissecting room was opened "at

the rere"—in the lurid days of "resurrectionist" activity. But their "hospital school" did not survive long. The more important functions of practical medicine and surgery have continued ever since to grow with every successive generation. And its record of the 24 hours which elapsed between the midnight of Dec. 24–25th and that of the 25–26th conclusively proves, I think, not merely the present usefulness of the institution but the survival of the somewhat "extravagant and errant spirit" which so largely dominated our Irish metropolis in the good old days of its Donnybrook celebrity! Over 100 Christmas casualties were treated in the course of that diurnal cycle. They included most of the more readily conceivable forms of bodily injury; from the inevitable tram-car accidents productive of facial wreckage or solutions of continuity of ribs and limbs, to the melodramatic type of injury sustained by a patient whose face had been bitten severely, it was explained, 'by a friend!'" The list also included the following cases: wound of left eye which had been struck with a jug; wound on wrist caused by "putting his hand through a pane of glass"; "injuries of spine due to assault"; "fractured jaw due to a kick"; and the interesting, and decidedly unusual, lesion of dislocated lower jaw. A goodly proportion of the injuries were due to falls, due to tripping or stumbling on the street, off "outside" cars, through windows of various levels, even including a sailor's fall of 30 feet (from a mast of s.s. *Lord Lansdowne*). So it may be concluded that the Christmas experiences of the surgical "residents" and "dressers" of the Jervis-street Hospital during the waning days of the old year were as laborious as they were instructive.

Old Age Pensions: Mutual Sympathy of the Irish Poor.

The subject of old age pensions is inevitably one of the most prominent "in the public eye," and the advantages which they convey to the very numerous recipients, otherwise feeble and destitute in the helpless twilight of their existence, are continually reiterated, while the very "practical" grievance afforded by the exclusion of the recipients of Poor-law relief, outdoor and indoor, is the subject of very vigorous and, many of us think, very just criticism. One of the gratifying results of this same has brought into special prominence one of the best traits in the Irish character—the mutual sympathy of the poverty-stricken—which has always existed in this country to a degree which can hardly, I think, be paralleled in any other community of Christendom. At last week's meeting of the Swinford board of guardians (county Mayo) the chairman brought before it the result of the proceedings of the meeting of the Kiltimagh old age pensions committee, which was presided over by the Rev. Denis O'Hara. It had been called for the purpose of examining a number of cases specially reported on by the pensions officer, and the chairman took the opportunity of calling attention to the disqualification referred to. "Some of those who had been disqualified," said Father O'Hara, "were at one time among the most respected and industrious residents in the parish, but by some unkind fate they had been crushed down in the battle of life through no fault of their own." He then suggested that if each of the pensioners would voluntarily agree to pay 1*d.* per week out of his or her pension it would enable the committee to give to each of the disqualified a pension of 5*s.* a week, until they became qualified, in the course of two years, under the existing Act. The response was a prompt and unanimous one: "A number of the old age pensioners stood up and said that they would give a contribution of 6*d.* per week for the purpose. Father O'Hara said that he had got the names of all those disqualified on account of indoor and outdoor relief, and he was satisfied that a contribution of 1*d.* per week from each pensioner would suffice to carry on the scheme until 1911, when the disqualification would cease to operate. One of the old men then stood up and proposed that in order to start the fund they should give 6*d.* from the first week's pension and this would also enable them to get lodgings for the few poor persons from the parish who are in the workhouse. The chairman said it was a sight worth seeing to witness the sympathetic enthusiasm with which the whole body of the pensioners supported this proposal, and the result is that the scheme is now in operation and suitable lodgings have been taken for the few persons in the workhouse."

The Health of Belfast.

The Belfast Citizens' Health Committee has issued, as I announced last week, a very full and able reply to the joint report of the improvement and public health committee of the city corporation in reference to the Belfast Health Commission. In this reply the real reasons which led to the appointment of the Commission are given; the points suggested to the then Chief Secretary for Ireland (Mr. Bryce) as calling for inquiry are set forth in a parallel column with the findings of the Commission. The subjects of consumption, typhoid fever, and infantile mortality in Belfast are very fully dealt with, showing how little the city corporation has done to get rid of these conditions; and the findings of the Commission on the insanitary conditions of Belfast are fully emphasised. The question of the real population of Belfast in 1906 is discussed very fully and it is shown that the report of the Commission on this head is wrong, and it is clearly demonstrated that its findings on this point cannot be accepted and that the figures of the Irish Registrar-General are more accurate and more justified. It is pointed out that while the chairman of the public health committee estimated the population of Belfast in 1906 as being 394,778, as against the figures of the Irish Registrar-General of 366,220, the assistant town clerk, quite recently, took the population given at the last census and added a couple of thousands as the population of the present year for the purpose of the old age pension scheme; while, more remarkable still, the city accountant stated in his evidence before the Local Government Board inquiry on the sewage purification scheme (held this December) that the population now is 380,344. In other words, it has apparently fallen 8000 since the chairman of the public health committee made his calculation in 1906. In conclusion, it is submitted that the findings of the Health Commission justify the action of the Citizens' Health Committee. Satisfaction is expressed that since this Commission was asked for there has been somewhat greater activity in dealing with some of the many health problems with which Belfast, owing to the neglect of the past, is now faced, and it is stated that if the health authorities will seriously grapple with these questions, as has been done in English and Scotch cities, they will find no more cordial supporters that the Belfast Citizens' Health Committee.

Jan. 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Hydrophobia in the Department of the Seine.

AT a meeting of the General Council for the department of the Seine M. Mithouard read an interesting paper upon the above subject, dealing with the statistics of recent years. In 1901 the number of persons attacked by hydrophobia in the department of the Seine, including Paris, was 846. In 1908 up to the end of November there were only 29 cases, and in the four last years no person has died from the disease in the department. Cases amongst animals are also much rarer than formerly, and from Aug. 6th to Nov. 14th, 1908, there was only one in the suburbs of Paris. In Paris itself the last case observed among dogs was on August 29th. M. Mithouard attributes this decrease to the destruction of vagrant dogs. The tables for hydrophobia show that by far the greater number of cases occur in a group of communes around the Bois de Vincennes, which is evidently the last resort of vagrant dogs. The General Council has intrusted the capture of these animals to the keepers of this wood.

The Medical Inspection of Conscripts.

As medical difficulties have been raised concerning the conditions under which conscripts should be allowed to undergo medical inspection either in a department other than their own or abroad, the Minister for War has just sent the following instructions to the prefects. 1. For young men living in France. Conscripts desiring to undergo a fresh examination in a department other than that of their enrolment must apply to the prefect of their department 20 days at latest before the date fixed for the beginning of the proceedings of revision, and must produce before Feb. 15th a medical certificate concerning the disease or incapacity which they intend to plead, together with a duplicate copy of their application. 2. For young men living abroad. In order to obtain permission to undergo medical

examination abroad conscripts must produce a French diplomatic or consular declaration certifying that they were resident abroad before Jan. 1st of the year in the course of which they are to appear before the revising committee.

The Use of Sulphate of Hordenine in the Treatment of Gastro-intestinal Affections.

M. Léger narrated before the Academy of Medicine on Dec. 22nd last his clinical experience of sulphate of hordenine, an alkaloid which he has obtained from barley malt. His experiments have shown the utility of this drug in the treatment of gastric hyperacidity and intestinal disorders, such as infantile diarrhœa, enteritis, entero-colitis, dysentery, and certain affections of the heart.

Revolver Bullet Wound of the Lung.

On Dec. 23rd last at the Chirurgical Society M. Demoulin showed a young girl, aged 20 years, who had had a revolver bullet wound in the right side of the chest. She was taken to hospital and was found to have a massive pleural effusion with violent hæmoptysis. As this symptom continued and as the effusion increased persistently in spite of complete rest thoracotomy was performed. An external flap was cut and turned back rapidly, the pleura was sponged clean, the lung was exposed and was found to be considerably retracted, whilst near the base was a laceration bleeding profusely. This wound was sutured with catgut, the lung was mopped dry, and the thoracic flap replaced, no provision being made for drainage. The patient made an uninterrupted recovery and has now regained her usual health.

The Drawbacks of the Use of Bichromate of Potassium as a Preservative of Milk Samples for Analysis.

At the Academy of Sciences on Dec. 21st, 1908, M. A. Mouvoisin recorded an observation of great importance from the point of view of public health—namely, that the special red tablets of bichromate of potassium which it is the rule to add as a preservative to samples of milk taken under the provision of the Frauds Act, vitiate the official chemical tests applied to detect whether the milk has been treated or adulterated with oxygenated water.

Jan. 4th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Trachoma.

THIS is the fourth of the physical scourges of Italy—the other three, in order of classification, being, first, tuberculosis; second, malaria; and third, pellagra; truly a formidable "quadrilateral" which medical strategy has to storm and dismantle. The statistical year 1907 records 2157 as the number of "tracomatosi" treated in the Ospedale Oftalmico of Rome, a number which will be exceeded in the return of 1908; in a ratio, moreover, which has induced the directors of the hospital, with the sanction of the Board of Public Health, to initiate a special section or "ambulatorio" for such patients. The sanitary engineer, in concert with the medical authority, will see to the construction and equipment of this supplementary building which will have four corresponding "ambulatori" for provincial requirements—one at Cività Vecchia, one at Viterbo, one at Velletri, and one at Frosinone. In addition to this, the charitable institutions in the hill country or on the seaboard for aiding and confirming the cure of children's cases with fresh air and change of scene are also in course of extension, the whole *ensemble* of conditions, therapeutic and prophylactic, being inspired with the conviction that every influence that antagonises the scrofulous cachexia must lessen the number of "tracomatosi." Popular instruction will also come into play in the form of lectures and plainly expressed leaflets, so as to enlighten the parent on the causes of the disease and its normal course. This will so far assist the profession by favouring its intervention at the earlier stages of the malady and by minimising the risks of contagion until, in good time, we may be spared the spectacle of so many children in town and country disfigured with palpebral granulations, incapacitated for school attendance, and finally reinforcing the ranks of the "disoccupati" and the "questuanti" (the unemployed and the mendicant). For the above details I am indebted to the annual report, just issued, of Dr. Mariano Schellingo, head of the Ospedale Oftalmico in Rome, whose post-graduate course on eye diseases I may add has proved one of the most valuable in the series of such lectures.

Wolves in Italy.

The "nursing-mother" of Romulus and Remus is still *en évidence* in Italy, though not in the amiable capacity immortalised by legend. In the south, especially in the Abruzzi and Calabria, as also in the islands of Sardinia and Sicily, wolves are to be found in sufficient numbers not only to keep the inmates of the den on the Capitoline slope perennially in full representative force but also to prove a peril to the wayfarer in landward districts. Inclement winters usually drive them from their haunts in quest of food and many are the encounters in which the human victim, if not left dead and devoured, has to resort to the nearest "Istituto Antirabbico" for (among other precautions) cauterisation and disinfection of his wounds. The latest instance in point comes to me from Catania. On the evening of Dec. 23rd last, near Gravina in that province, a little boy aged seven years was sent by his father to fetch water from a neighbouring cascade. The house from which he went was in the open country at the margin of a wood, sufficiently near the village, one would think, to keep aggressive animals at a distance. An hour elapsed and his return was still expected when the father, getting anxious, set out in search of him with a lantern. But all in vain. After wandering about until far into the night he gave up all hope of finding him till the morning; which, however, brought him not the boy but a few peasants with the tidings that they had come upon some horribly mutilated remains—a body wanting the arm and the leg and all the facial parts gnawed away. This was in the thicket of Ramusa to which the poor boy (identified from his clothes) had been carried by a wolf, the foot-prints of which were traced for some distance and which had killed and partially devoured him.

The Health of the Pope.

Christmas Eve found His Holiness still ailing, the arthritic pains recurring with severity and the *raffreddore* from which his complete recovery had been hoped for still sufficiently accentuated to counsel his dispensing with the Christmas good wishes (*gli auguri natalizi*) personally conveyed to him by representatives of the Corps Diplomatique and the Sacred College. In fact, the usual ceremony was restricted to his receiving in brief, almost curt, audience the dignitaries of the Apostolic Court.

From "Paradiso" to "Inferno."

Words are weak to convey the impression of desolation and misery borne in upon the spectator of what was just one week ago an "earthly paradise." Not only Messina and Reggio, but the neighbouring townships and villages, particularly in Calabria, are as woe-enthrilling as ever met a sympathetic human eye. What enhances the horror of the whole situation is the inadequacy of the salvage and relief work in behalf of the survivors — nobly spontaneous, energetic, and largely manned and liberally equipped as the said work undoubtedly is. Famine, pestilence, and multiform disease, mental as well as physical, are now succeeding the tale of death and bodily lesion that came with the primary shock; insomuch that the difficulty of keeping the head clear and the organisation effective in face of such conditions is more than the local committees and relief parties can cope with. The chief burden of the situation is falling on the medical department, reinforced as it is by the volunteered services of cliniques from well-nigh every school in island and on mainland; from some of which indeed the heads even are already working on the spot. But, as I have said, the magnitude and complexity of the suffering are telling upon the relief organisation itself, with the inevitable result of "overlapping," and even "cross purposes" in its operations. The journals literally ring with heart-rending appeals sent from the various centres of visitation by correspondents and relieving officers, as the following—one out of many—may serve to show. "Disorganizzazione enorme! Manca il Pane!" heads a column in one of the Milanese papers; while other journals tell of railway trains stopped and assailed by starving crowds, the bulk of which had been without food for days. So much for famine; and then the pestilence. "One hundred thousand bodies in putrefaction"

in Messina alone, is another headline! What wonder if, as I have said, the relief organisation is losing its head, if not resorting to counsels of despair? One such counsel, only tendered to be at once rejected, may be taken as a measure of the desperation to which a distracted public is driven—the proposal, to wit, that what remains of Messina should be bombarded from the sea and the tottering, still upstanding, edifices be scattered over the other ruins so as to occlude the exhalation from the putrescent dead! Another and a better "counsel" is that of drenching the amorphous mass of rubbish with bromide of calcium, already imported by the ton. "Catania one vast hospital" is another announcement just to hand, and here again the inevitable overcrowding, with defect of *personnel* and equipment, is fraught with ominous menace. And yet every train is bringing in more of the injured. In circumstances such as these the cool judgment and indefatigable energy of the King are a source of inspiration as opportune as it is sustaining, and his telegram to the Premier (Signor Giolitti) is already thrilling through the land like a reveille, calling on every compatriot to outdo, in every sense, what under his own eye and with his own head, hand, and heart has already been done. Meanwhile, there is one direction in which public sympathy and action are at one—the "short shrift" meted out to the "belve umane" (human wild beasts) or "iene" (hyenas), as the press calls them, who are haunting the ruins for purposes of loot. Ruthlessly shot down wherever encountered these scoundrels (the off-scourings of the cities, let loose from the jails which, by the irony of Providence, were just damaged enough to facilitate escape and leave the fugitives uninjured), these miscreants made off with heavy booty within a few hours after the shock and some of them were even found to have murdered the injured but still surviving possessor of a watch, or a purse, or a cherished valuable. Deeds, in truth, for which we have to go back to the last siege of Jerusalem, as described by the iron pen of Josephus, were perpetrated in open day and amid scenes of agonising suffering by malefactors spared from the cataclysm—deeds which it will take all the humanity displayed by the relief parties, mainly medical, to countervail, for the credit of human nature and the refutation of Hobbes's saying: "Homo homini lupus."

Jan. 4th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

A Travelling Hospital Commission.

A COMMISSION, consisting of Dr. Harry Campbell, Dr. T. D. Savill, Mr. Ian Malcolm (chairman of the committee of the West-End Hospital for Nervous Diseases, London), and Mr. Paul Phipps visited Vienna recently for the purpose of studying the hospital arrangements in this city. The four gentlemen have been deputed by the West-End Hospital committee, which desires to erect a new up-to-date hospital for nervous diseases. In Vienna they have visited the Steinhof (lunatic asylum), the clinic in the new General Hospital, and a sanatorium for mental diseases. They saw also in the old General Hospital wards from which they have doubtless learnt how a hospital should *not* be built. The commission received every assistance from the hospital authorities here and left Vienna after a stay of two days.

A Case of Barlow's Disease.

At a recent meeting of the Gesellschaft der Aerzte Dr. Friedjung showed a baby, seven months old, who presented all the symptoms of Barlow's disease. The parents are healthy, but a sister of the mother had morbus maculosus (Werlhoff) when five years old. The baby was reared on a specially prepared milk, which was well tolerated up to the third month of age, when a violent irritation of the intestinal canal prompted the physician to change it. The baby was then given a sterilised milk from one of the "gouttes de lait" (milk-distributing offices), but he did not thrive on it. Liebig's soup was also not tolerated. Even at that age it was noticed that extension and flexion of the legs caused the child to cry out. He became very weak and suddenly began to suffer from nose bleeding without any apparent cause. A bluish discolouration appeared in several other parts in the skin, especially above the orbit, and the temperature began to go up to 100°–102° F. When examined it was found that both thighs were swollen above the lower epiphysis, the tibiæ also being swollen and very tender, and some infiltrations of the gums had appeared recently. X ray photographs of the legs showed the line between bone and cartilage to be irregular and saw-like. This typical case of Barlow's disease was not recognised by several competent physicians, the disease being so very rare here, but in Berlin every student sees many cases in his hospital experience. Under appropriate treatment, consisting of lemon and orange juice and raw milk, the symptoms rapidly disappeared, the temperature fell to normal, and a fortnight after the demonstration the child was practically well again.

The Hydatidiform Mole from a Forensic Point of View.

Since in this country notification of births is compulsory upon the physician, the mother, or the midwife, the following incident is worthy of record. A girl in the fourth month of pregnancy was relieved by a midwife of the contents of her uterus, which proved to be a hydatidiform mole. Subsequently the girl had to attend a hospital where suspicions were aroused and the case was reported to the Public Prosecutor. As the result of the trial which was instituted thereupon both the girl and the midwife were sent to prison because, as the judge remarked, the emptying of a uterus by a midwife without notification of the fact of a "still-birth" involved the crime of criminal abortion. The assistance of a gynæcologist ought to have been secured in this instance, but even then the abortion would have had to be notified to the registrar. Both judgment and reasoning were criticised freely in medical circles.

A Case of Mistaken Sex.

At a meeting of the Medical Society Dr. Reines showed a patient, aged 44 years, dressed as a woman, who had come to him to obtain advice about the exuberant growth of a beard. Several points, such as the deep voice, the development of the face, and the forehead, suggested the possibility of abnormal sexual conditions. Examination revealed the presence of a normally situated but abnormally short imperforated penis. Along the lower surface of the glans and penis there was a shallow furrow leading to the centre of the perineum, where there was a small opening—the orificium urethræ externum. Urine could be passed in a squatting position. Two fleshy, hairy folds of skin containing no bodies of the shape or appearance of testicles or ovaries covered the orifice. In the inguinal canal no testicle-like body could be felt; per rectum an organ resembling a prostatic gland was palpable but no vasa deferentia could be felt. The patient must be regarded as a male subject with perineal hypospadiasis of a high degree, with a cleft scrotum and non-descent of the perhaps rudimentary testicles. The form of the pelvic bones and of the mammæ, the type of hair, and the absence of any menstrual bleeding support this view. The patient had been brought up as a girl and continued to consider himself a girl because of his method of micturition. There had never been any sexual desire or performance and the patient wished to remain a woman, having been used to it all his lifetime. Only the strong growth of his beard has troubled him lately as he was hindered by it in his occupation. Very few cases of mistaken sex have remained undetected to so late an age.

Investigations on Hepatoptosis.

Owing to a series of investigations on the operating table and in the dissecting room Professor Tandler and Docent Dr. Föderl have formulated a new opinion as regards the condition called hepatoptosis. Writing in the *Wiener Klinische Wochenschrift* they assert that the condition of hepatoptosis has not yet been proved to exist. Their definition of ptosis is: "The change of position of an organ by elongation of its fixation apparatus." For the liver this would mean elongation of the peritoneal bands between the liver and diaphragm, and of the piece of the vena cava inferior between the point of exit from the liver and the point of entrance into the diaphragm. Both surgeons have made exact measurements of these parts, as in the literature no such measurements have been reported hitherto. They found the length of the vena cava to be 4 centimetres (1⅗ths of an inch) nearly constantly. The clinical condition called hepatoptosis is caused either by relaxation of the abdominal walls, with the rotation of the liver on a horizontal frontal axis and descent of the lower border of the organ, or by the combined descent of the diaphragm and the liver post partum, or by the loss of the

normal tension of the diaphragm owing to pathological changes in the pectoral cavity, with a consequent rotation of the liver. On the other hand, the liver has a considerable degree of "plasticity"; it may conform itself to the conditions of pressure and the space at its disposal in such a manner that the organ may appear to have been dislocated or even to have changed its shape entirely. Many cases of "wandering liver" are caused by this "transformation." The attention of surgeons has been called to this fact and such changes in the size and shape of the liver have been found in cases diagnosed before operation as hepatoptosis. The clinical conclusions of the investigations are the following. Hepatoptosis is a symptom, not a disease *per se*. The hypotonia of the abdomen is the etiological factor. If massage, bandages, and a nutritious diet do not succeed in correcting the condition an operation is required, consisting preferably in shortening the ligamentum teres. The subjective symptoms of hepatoptosis are mostly caused by secondary processes in the gall-bladder and the bile-passages.

Jan. 2nd.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

An Indore Hospital.

A VERY interesting ceremony was performed at Indore last evening—the opening of the Nurses' Home by Mrs. Kaye and of the Mahajan Ward of the Maharani's hospital by His Highness the Maharaja. Among those present were the Hon. the Agent to the Governor-General in Central India, Colonel Daly, Colonel Kaye (the Resident at Indore) and Mrs. Kaye, His Highness the Maharaja of Datia, Mr. Jardine (Political Agent, Nowgong), and several other European guests, Rai Bahadur Nanak Chand, C.I.E., Minister, sirdars, sahukars, and principal officials of the State. Dr. Jambe, State surgeon, in welcoming the guests, said that it was hardly 15 months since the Maharani's hospital was opened by the Honourable Colonel Daly. They had met again to witness the opening of the Nurses' Home, an institution which he hoped would fill a great public want. The second function of the evening, Dr. Jambe continued, was the opening of the Mahajan Ward which had been built from the donations received from the Mahajan community of Indore. The necessity for such separate wards in a country like India, with its numberless castes and caste prejudices, was obvious, but it was impossible for the Durbar to build them so as to meet the requirements of individual classes. The appeal for donations was promptly met and a handsome amount was speedily collected. Dr. Jambe then introduced Seth Hukum Chand to the Maharaja. Seth Hukum Chand expressed his gratefulness on behalf of the community for the peace and security which they enjoyed for generations in the State with an assurance of their characteristic devotion and loyalty to the State and the British Government. He then requested His Highness to open the Mahajan Ward. His Highness the Maharaja, in reply, said that it gave him much pleasure to see the ward which had been constructed by the Mahajan community. He was also gratified to infer from Dr. Jambe's report that the State hospital with its staff had been working satisfactorily. He hoped that the efforts of Seth Hukum Chand, Kalyanmal Kasur Chand, and Munna Lall in the charitable purpose would be followed by other citizens of Indore and would thereby increase the reputation of the city. His Highness the Maharaja then requested Mrs. Kaye to open the Nurses' Home, which she did, and the Maharaja then opened the Mahajan Ward. After the performance of the double ceremony and the usual distribution of *attar*, *pan*, and garlands, the party dispersed.

Camphor in Ceylon.

The United States Vice-Consul at Colombo says that an early appreciable contribution to the world's supply of camphor is promised as the result of recent planting operations in Ceylon. In 1907 the camphor acreage of the island was increased from 142 to 1106 and the indications are that the new acreage of 1908 will be even greater. Camphor planting, he continues, has been stimulated by the high price of the drug and by the successful results of experimental planting. While camphor will not grow at sea-level in Ceylon, it finds congenial conditions in the mountainous parts of the island and thrives finely at elevations of from 2500 to 8000 feet. The situation is so favourable to its profitable production that enthusiastic planters entertain the belief that Ceylon in a few years will produce camphor in a quantity greater than the world's present demand. It is estimated that the planting of between 15,000 and 20,000 acres in Ceylon would develop a production of 8,000,000 pounds, which, according to most authorities, is the quantity of camphor demanded annually at present. The rapid growth of the twigs and the cheapness of land and labour are the factors depended upon by planters to give Ceylon an advantage over other camphor-producing countries. The figures given by planters to represent the cost of a pound of Ceylon camphor are much below the figure representing the reputed cost of synthetic camphor produced in the United States from turpentine oil.

Dec. 3rd, 1908.

Medical News.

UNIVERSITY OF OXFORD.—The following degrees have been conferred in Medicine and Science:—

D.M.—H. W. Kaye, Magdalen.
D.Sc.—H. L. Bowman, New College.
B.M., B.Ch.—M. Davidson, Trinity; H. E. Gibson, Queen's; G. D. H. Carpenter, Non-collegiate; J. F. Hornsey and H. M. C. Green, Wadham; and O. L. V. S. de Wesselow, Corpus Christi.
B.Sc.—M. Sopota, non-collegiate; and H. E. Cocksedge, Keble.

The following candidates have been approved at the examinations indicated:—

PRELIMINARIES.

Mechanics and Physics.—H. Ball, Brasenose; R. R. Baxter, St. John's; R. Boumphrey, Christ Church; A. W. Clemes, Magdalen; R. H. Crane, Keble; H. C. Doyne, Trinity; V. T. Ellwood, Pembroke; D. M. Ely, Exeter; H. T. Evans, Jesus; C. G. Fannin, Exeter; A. G. Harper, Magdalen; S. J. Heald, Lincoln; W. Hunter, non-collegiate; W. W. Johnson, Pembroke; D. H. Jones and O. P. Jones, Jesus; E. H. Kennard, Exeter; T. S. Nelson, University; R. W. Poulton, Balliol; L. K. Underhill, Jesus; C. A. Vlieland, Balliol; J. S. Walker, Jesus; and B. H. Wilsdon, Lincoln.
Physics.—P. G. Doyne, Trinity; O. H. Gotch, New; J. L. Kathju, Exeter; O. G. Parry-Jones, Magdalen; G. D. Pidgeon, Christ Church; H. M. Poper, Lincoln; O. B. Pratt, Christ Church; S. K. Ray, Exeter; C. P. Sells and O. Sidky, Merton; G. Stanger, Lincoln; and J. W. Steell and D'A. W. Ward, Trinity.
Chemistry.—W. Agar, Oriel; F. C. Baker, Balliol; H. Ball, Brasenose; R. R. Baxter, St. John's; W. G. V. Blogg, Keble; H. E. A. Boldero, Trinity; R. Boumphrey, Christ Church; B. A. Bull, Jesus; F. B. Chavasse, Balliol; A. W. Clemes, Magdalen; W. T. Collier, Balliol; R. H. Crane, Keble; K. M. Dyott, non-collegiate; V. T. Elwood, Pembroke; H. T. Evans, Jesus; R. A. Fawens, Oriel; E. A. Fisher, Balliol; J. F. M. Floyd, Queen's; F. W. Haeffner, New; A. G. Harper, Magdalen; S. J. Heald and S. Jelland, Lincoln; O. P. Jones, Jesus; R. O. Lagden, Oriel; J. A. Liddell, Balliol; R. H. Lucas, Christ Church; T. S. Nelson, University; A. R. Nicholson, Worcester; Sir W. L. Parker, Bart., New; G. D. Pidgeon, Christ Church; R. W. Poulton, Balliol; O. B. Pratt, Christ Church; N. D. Pringle, Lincoln; E. Scott, St. John's; F. G. L. Scott, Merton; G. P. Selby, New; C. P. Sells, Merton; L. K. Underhill, Jesus; C. A. Vlieland, Balliol; J. F. West, Christ Church; and B. H. Wilsdon, Lincoln.
Zoology.—V. T. Ellwood, Pembroke; and E. Scott, St. John's.
Botany.—W. H. Bleadon, Brasenose; J. C. Davies, New; C. Dean, Trinity; V. T. Ellwood, Pembroke; D. P. McDonald, Oriel; G. A. Maling, Exeter; Hon. P. A. Methuen, New; T. L. Price, Keble; G. S. Robinson, Exeter; E. R. Speyer and A. B. Thompson, New; B. E. Wall, Lincoln; D'A. W. Ward, Trinity; and J. F. West, Christ Church.

FIRST B.M.

Organic Chemistry.—R. G. Barnes, Christ Church; J. D. Batt, Trinity; A. Booth, B.A., and E. W. Carrington, Keble; G. W. Carte, B.A., and J. C. Davies, New; C. Dean and P. G. Doyne, B.A., Trinity; S. D. Gurney, Wadham; R. St. A. Heathcote and E. W. N. Hobhouse, New; H. S. Knowlton, Keble; D. P. McDonald, B.A., Oriel; and W. W. Walker, New.
Materia Medica.—C. W. Armstrong, B.A., Jesus; C. H. Budd, B.A., Oriel; and A. W. Dennis, Keble.
Anatomy and Physiology.—G. R. Beaumont, University; A. W. Donaldson, Hertford; N. P. Hallows, Keble; W. F. Harvey, B.A., Balliol; N. S. Lucas, B.A., New; and E. O'Connor, B.A., Lincoln.

FINAL B.M.

Pathology.—R. F. Bridges, B.A., University; O. L. V. S. de Wesselow, B.A., Corpus Christi; P. C. Fowell, B.A., St. John's; N. Glover, B.A., Trinity; G. J. Z. Jessel, B.A., University; J. F. Penson, B.A., non-collegiate; E. W. M. H. Phillips, B.A., Jesus; and E. P. Poulton, B.A., Balliol.
Forensic Medicine and Public Health.—C. N. Binney, B.A., Corpus Christi; P. N. Cave, B.A., and C. D. H. Corbett, B.A., University; O. L. V. S. de Wesselow, B.A., Corpus Christi; C. Gouldesbrough, M.A., Christ Church; A. H. Savage, B.A., New; and T. S. Wright, M.A., Brasenose.
Medicine, Surgery, and Midwifery.—G. D. H. Carpenter, B.A., non-collegiate; M. Davidson, M.A., Trinity; O. L. V. S. de Wesselow, B.A., Corpus Christi; H. E. Gibson, B.A., Queen's; H. M. C. Green, B.A., and J. F. Hornsey, B.A., Wadham; G. E. Thornton, B.A., Oriel; and D. B. Todd, B.A., Lincoln.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees held recently the following satisfied the examiners:—

FIRST EXAMINATION.

Part I., Chemistry and Physics.—P. H. Berry, King's; M. W. K. Bird: Emmanuel; L. G. Bradfield, Caius; I. M. Brown, Downing; H. J. H. Cursetjee, Caius; H. Dunkerley, Downing; H. H. M. Gould, Clare; A. D. Haydon, Caius; A. M. Humphry, Caius; T. Owen, Jesus; H. S. Reed, B.A., Trinity; J. C. Russell, Caius; J. E. Sharp, Caius; T. W. Sheldon, Emmanuel; A. E. Staffurth, Sidney Sussex; J. M. Thorburn, Trinity; E. H. Thurston, Caius; A. R. S. Warden, Caius; F. A. Williamson, Queen's; and H. G. Wiltshire, Emmanuel.

Part II., Elementary Biology.—G. L. Attwater, Pembroke; M. T. Clegg, Jesus; H. E. Cresswell, Caius; H. H. M. Gould, Clare; G. C. King, Caius; C. Lambrinudi, Christ's; J. A. Martin, Pembroke; J. B. Matthews, Clare; W. New, Downing; C. F. Pedley, Jesus; F. S. L. Piggott, Emmanuel; H. S. Reed, B.A., Trinity; and L. H. D. Thornton, Emmanuel.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—D. F. Dobson (Sections I. and II.), Leeds; J. M. Fishe (Section I.), Royal Free Hospital; W. N. Pickles (Section I.), Leeds; and A. F. Reardon (Sections I. and II.), St. Thomas's Hospital.

Medicine.—H. W. B. Danaher (Section I.), London Hospital; D. F. Dobson (Sections I. and II.), Leeds; J. M. Fishe (Sections I. and II.), Royal Free Hospital; J. S. H. Lewis (Sections I. and II.), University College Hospital; H. A. Parker (Sections I. and II.), St. Thomas's Hospital; W. N. Pickles (Sections I. and II.), Leeds; and S. H. Watton (Section I.) and R. P. Wylde (Sections I. and II.), Manchester.

Forensic Medicine.—A. H. C. Dawes, Westminster Hospital; D. F. Dobson, Leeds; J. M. Fishe, Royal Free Hospital; W. N. Pickles, Leeds; and H. T. Roberts, St. Mary's Hospital.

Midwifery.—D. F. Dobson, Leeds; J. M. Fishe, Royal Free Hospital; J. Bramley Moore, University College Hospital; W. N. Pickles, Leeds; G. G. Rigby, Manchester; and J. W. Williams, Cardiff and Guy's Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—D. F. Dobson, H. A. Parker, and A. F. Reardon.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* The title of Professor has been granted to Dr. Gustav Brühl, *privat-docent* of Otology and Rhinology and to Dr. Georg Abelsdorff, *privat-docent* of Ophthalmology. Dr. Gustav von Bergmann and Dr. Fritz Meyer have been recognised as *privat-docenten* of Medicine, Dr. R. Jolly as *privat-docent* of Midwifery and Gynæcology, and Dr. Felix Pinkus as *privat-docent* of Dermatology.—*Bonn:* The chair of Therapeutics has remained vacant since the retirement of Professor Binz; Professor Leo, director of the Medical Polyclinic, will give the lectures during the rest of the winter session.—*Budapest:* Dr. K. Borszéky has been recognised as *privat-docent* of Operative Medicine.—*Chicago (North-Western University):* Dr. Brown Pusey has been appointed to the chair of Ophthalmology in succession to Dr. Casey A. Wood resigned.—*Geneva:* Dr. A. d'Espine has been appointed to the chair of Pædiatry.—*Göttingen:* Dr. Lichtwitz has been recognised as *privat-docent* of Medicine.—*Kiel:* Dr. Rudolf Höber, assistant in the Physiological Institute, Zürich, has been recognised as *privat-docent* of Physiology.—*Lemberg:* Dr. Johann Pruszynski has been recognised as *privat-docent* of Pharmacology.—*Manila:* The American Government has appointed Dr. W. Wiechovsky, *privat-docent* of Pharmacology in the German University of Prague, to the chair of that subject.—*Marburg:* Dr. Georg Schöne has been recognised as *privat-docent* of Surgery.—*Munich:* Dr. Otto Neubauer, assistant to Professor von Müller, has been recognised as *privat-docent* of Medicine, and Dr. John Seemann as *privat-docent* of Physiology.—*Philadelphia (Woman's Medical College of Pennsylvania):* Dr. R. C. Rosenberger has been appointed Lecturer on Hygiene.—*Rostock:* Dr. Karl Grünberg has been recognised as *privat-docent* of Otology and Laryngology.—*St. Petersburg (Women's Medical Institute):* Dr. T. A. Shabad has been recognised as *privat-docent* of Children's Diseases.—*Vienna:* Dr. S. von Schumacker Marienfeld has been promoted to be Extraordinary Professor of Anatomy; and Dr. L. Réthi *privat-docent* of Laryngology; Dr. K. Sternberg, *privat-docent* of Pathology; and Dr. H. Peham, *privat-docent* of Midwifery and Gynæcology, have been granted the title of Extraordinary Professor. Dr. Konstantin Bucura has been recognised as *privat-docent* of Midwifery and Gynæcology.

Mr. E. M. Grace, L.R.C.P. Edin., M.R.C.S. Eng., has resigned the secretaryship of the Gloucestershire County Cricket Club which he has held for a period of nearly 40 years. The Gloucester County Cricket Club was formed in 1870, and for a number of years "the three Graces" were a tower of strength in county cricket. "E. M." undertook the secretarial duties from the start and played regularly for the county up to 1894.

A WELSH CENTENARIAN.—Mr. Thomas Williams of Llangorse, Brecknockshire, celebrated the hundredth anniversary of his birthday on Dec. 21st last.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.—The Sunday schools of Plymouth and district have collected over £50 for the funds of the South Devon and East Cornwall Hospital.

ROYAL NAVAL HOSPITAL, STONEHOUSE, PLYMOUTH.—An examination for the rank of staff-surgeon will be held at the Royal Naval Hospital, Stonehouse, on Jan. 12th and 13th. Fleet-Surgeon John Moore, of H.M.S. *Indus*, will attend at the hospital on each day.

ROYAL SANITARY INSTITUTE.—A provincial sessional meeting of the institute will be held in Manchester on Friday, Jan. 22nd, including, at 2.30 P.M., a visit to the new Manchester Royal Infirmary, and at 7 P.M. a discussion in the Municipal School of Technology on the Manchester Royal Infirmary from the Hygienic, Sanatory, and Æsthetic Points of View, which will be opened by Mr. Edwin T. Hall, V.-P.R.I.B.A., followed by Mr. John Brooke, F.R.I.B.A. (architects of the infirmary). The chair will be taken by Mr. H. D. Searles Wood, F.R.I.B.A. Tickets for admission of visitors may be had on application to Professor J. Radcliffe, Municipal School of Technology, Manchester, who is acting as the local honorary secretary of the meeting, and of the institute secretary, Mr. E. White Wallis.

HONG-KONG COLLEGE OF MEDICINE.—The Hong-Kong Medical College, which is under the patronage of His Excellency the Governor of the Colony, has just issued its calender for the year 1908–09. In addition to a detailed description of the curriculum of the college and a synopsis of the examinations there it contains a short but interesting account of the history of the institution which owes its inception to a meeting which was held on August 30th, 1887, in the then recently opened Alice Memorial Hospital, when it was resolved to establish a College of Medicine for Chinese in Hong-Kong, and Dr. (now Sir) Patrick Manson was appointed the first Dean and requested to deliver an inaugural address in the City Hall at the opening of the winter session in the following October. Dr. Francis W. Clark is the present dean, having held this office since 1897, his predecessor being Mr. James Cantlie who succeeded Sir Patrick Manson.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of this society was held at 429, Strand, London, W.C., on Dec. 18th, 1908. There were present: Dr. F. de Havilland Hall (in the chair), Dr. G. A. Heron (trustee), Dr. G. E. Herman and Mr. H. H. Clutton (the treasurers), Dr. M. Greenwood, Mr. H. P. Symonds (Oxford), Dr. St. Clair B. Shadwell, Dr. W. G. Dickinson, Dr. W. A. Dingle, Dr. W. Knowsley Sibley, Dr. F. S. Palmer, Dr. M. G. Biggs, Mr. J. F. Colyer, Dr. J. W. Hunt, Dr. H. A. Sansom, Mr. J. Brindley James, and Dr. F. J. Allan. The accounts presented to the committee show that the business of the society is still growing at a satisfactory rate, and it is gratifying to note that although no money is spent in commissions and no agents are employed the number of new entrants is larger than ever. Prospectuses and all further particulars may be obtained on application to Mr. F. Addiscott, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

PROPOSED NEW ISOLATION HOSPITAL AT SOLIHULL.—As already mentioned, the provision of a new isolation hospital for Solihull has been necessitated by the rapid expansion of Yardley, which has hitherto shared with Solihull in the joint use of a hospital at Olton. That hospital, however, is now quite inadequate for the necessities of the two districts and the Warwickshire county council has pressed Solihull to make proper provision. The district of Meriden, which possesses 11,346 inhabitants, is also in a very unsatisfactory position as regards isolation, for it depends upon a temporary agreement with Coventry which is terminable at six months' notice. In these circumstances it has been decided

that the hospital at Olton shall eventually be handed over to the Yardley district and that Solihull and Meriden shall join in the erection of a new hospital to be situated near Berry Hill, Solihull. It is estimated that the cost of building the new hospital will amount to £11,678, of which £6586 will be paid by the Solihull district and £5092 by Meriden, the proportion of contribution being based upon population. It is intended that enteric fever and diphtheria as well as scarlet fever shall be dealt with in the hospital which, when it is completed, will provide 56 beds. At present, however, it is only proposed to provide half that number in a four ward block. The building is to be of brick with a tiled roof and its erection will be pushed forward as rapidly as possible. When it is completed every district in the county of Warwick will be provided with the necessary means for the proper isolation of infectious cases.

PROHIBITION OF ABSINTHE IN SWITZERLAND.—Mr. Milligan, H.M. Vice-Consul at Zürich, mentions in his annual report that the Federal Act regarding the absinthe industry, which was submitted in July last to the referendum of the people and adopted by 236,582 votes to 135,888, will not come into operation until the year 1910. It decrees that the manufacture, importation, transport, and sale of absinthe, and of all beverages which would constitute an imitation of absinthe, shall be prohibited throughout Switzerland. The Act, however, will not affect the transit of foreign absinthe through the country or the use of absinthe for pharmaceutical purposes.

DONATIONS AND BEQUESTS.—The late Mr. E. Bush of Alveston, Gloucestershire, has bequeathed £600 each to the Bristol Royal Infirmary and Bristol General Hospital and £300 to the Bristol Eye Hospital.—The late Mrs. J. E. Bythway of Warborough, Llanelly, has bequeathed £1000 to the Llanelly Hospital.—The late Mr. Henry John Randall of Bridgend, Glamorgan, has bequeathed large sums for charitable purposes, including £6000 on trust for investment, the income to be applied for the maintenance of the Bridgend Cottage Hospital.—By the will of Mrs. Frances Roget of Maida-hill, W., £1000 are left to the National Society for the Employment of Epileptics at Chalfont St. Giles, Bucks, and a similar amount to the National Hospital for the Paralysed and Epileptic, Bloomsbury, and £500 to the Home for Epileptics at Maghull, near Liverpool.

THE FINANCIAL POSITION OF THE WORCESTER INFIRMARY.—The financial position of the Worcester Infirmary is causing considerable anxiety to the finance committee. At a recent meeting of the infirmary committee the secretary reported that in 1906 there was a deficiency of £3779, which was more than righted by legacies amounting to £6117. In 1907 the deficiency was £4424, whilst the total of the legacies was only £3594, and in 1908 only £500 had been received from legacies. At the present moment the deficiency at the bank is probably about £1900 and the funded property of the institution, which totalled £59,000 in 1899, has been reduced to £54,000. The infirmary is at present living on its capital and it is time that its supporters began to rally to its help, otherwise the usefulness of the institution must necessarily decrease.

ST. MARY'S HOSPITAL.—The resident medical officers' annual dramatic entertainment to the patients, nurses, former students, and friends of the hospital was given in the spacious out-patients' waiting-hall on Dec. 29th and 30th last. For the third time one of Mr. Pinero's early farcical comedies was presented, the play chosen for this occasion being *The Rocket*, a typical production of the early "eighties." Dr. E. T. H. Davies gave a capital rendering of the specious humbug posing as a chevalier of the Third Empire and touring the continent in his efforts to secure a snug home for his declining years by making a good match for his reputed daughter who is really his brother's kidnapped child. The play shows how this adventurer goes up like a rocket and how he comes down like a stick. Mr. A. Beaumont perhaps took chief honours as "Lord Leadenhall," a conventional "Johnny," and was ably supported by a delightful Pekin spaniel. "Lady Hammersmith," a gushing old fright, was portrayed with spirit by Mr. C. M. Wilson in a diverting contralto; and Mr. F. St. B. Wickham was an amusing deep-throated *ingénue*. Mr. T. H. Howells made a hit in the small part of a waiter, and the other characters worked hard for the success of the play, the achievement of which was left in no doubt by the audience. Dr. M. Mitchell Bird, the acting manager, and Mr. Frederick Clay, the stage manager, to whose untiring efforts year by year these entertainments owe much of their attraction and smooth running, were acclaimed heartily at the end of the performance. Mr. W. L. Cowardin directed a programme of vocal music between the acts.

A presentation to Dr. J. Dundas Grant was made on Dec. 19th, 1908, by the members of the Amateur Orchestra (now numbering upwards of 60, including numerous members of the medical profession), of which he is the founder and the conductor. The album of signatures was handed to Dr. Dundas Grant by the leader, Mr. Herbert McQuown, who on behalf of the orchestra begged his acceptance of a conductor's desk of original design and the acceptance of a rose-bowl of hammered silver by Mrs. Dundas Grant.

UNIVERSITY OF LONDON.—A course of three lectures on the Anatomy and Zoological Relationships of the Anthropoid Apes will be given in the theatre of the Royal College of Surgeons of England, Lincoln's Inn-fields, by Dr. Arthur Keith, F.Z.S. (Hunterian Professor, Royal College of Surgeons of England), at 5 P.M. on Friday, Jan. 15th, Thursday, Jan. 21st, and Friday, Jan. 29th. The subjects of the lectures are as follows: Lecture I., the Distribution, Anatomy, and Relationships of the Gibbon; Lecture II., the Distribution, Anatomy, and Relationships of the Orang; and Lecture III., the Distribution, Anatomy, and Relationship of the Chimpanzee and Gorilla. The lectures are addressed to advanced students of the University and others interested in the subject. Admission is free without ticket.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CLUBBE, C. P. B., M.R.C.S., L.R.C.P. Lond., has been appointed a Medical Member of the Dental Board of New South Wales, Australia.

CROWTHER, SYDNEY NELSON, M.R.C.S., L.R.C.P. Lond., has been appointed Senior Assistant Medical Officer at the Surrey County Asylum, Netherne, near Merstham.

HALL, OCTAVIUS, D.P.H., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Lecturer in Hygiene at the Devonport Municipal Science, Art, and Technical College.

HANNA, H., M.A., B.Sc., B.Ch. R.U.I., has been appointed Assistant Surgeon to the Ulster Eye, Ear, and Throat Hospital, Belfast.

HICKS, J. A. BRAXTON, M.B., B.S. Lond., has been appointed Senior House Surgeon at the Branch Seamen's Hospital, Royal Albert Docks.

HUTTON, HENRY RICHMOND, M.A., M.B. Cantab., has been appointed Lecturer on Diseases of Children in the University of Manchester, and Physician to the St. Mary's Hospitals, Manchester.

MAUDSLEY, H., M.D. Lond., F.R.C.P. Lond., has been appointed Lecturer in Medicine at the University of Melbourne, Victoria.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, EASTERN DISPENSARY.—Resident Medical Practitioner. Salary £130 per annum, with apartments, coals, gas, and attendance.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—House Physician. Also House Surgeon, both for six months. Salary at rate of £20 per annum, with board and lodging.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £170 per annum, and rooms, fire, lights, and attendance.

BOLTON UNION WORKHOUSE HOSPITALS.—Resident Assistant Medical Officer. Salary £170 per annum, with apartments, light, washing, and attendance.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon Salary £80 per annum, with board, lodging, and washing.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £80 per annum, with board, lodging, and washing.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Assistant Pathologist. Salary £80 per annum, with board, residence, and laundry.

BRISTOL ROYAL INFIRMARY.—Two House Physicians, One House Surgeon, One Obstetric and Ophthalmic House Surgeon, and One Throat and Nose and Ear Surgeon. Salary of two former £100 per annum, and of two latter £75 per annum. Also One Casualty Officer. Salary £50 per annum. With apartments, board, and laundry in each case.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician. Also Assistant House Surgeon. Salary of former at rate of £65 per annum, and of latter at rate of £50 per annum, with board, residence, and laundry in each case.

CANCER HOSPITAL, Fulham-road, London, S.W.—Three Clinical Assistants.
CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for six months. Salary £30, with board, residence, and laundry.
CHELTENHAM GENERAL HOSPITAL.—Surgeon-in-Charge of the Branch Dispensary. Salary £80 per annum, with board and lodging.
DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, attendance, and washing.
HALIFAX, ROYAL INFIRMARY.—Second House Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing.
HAMPSTEAD GENERAL HOSPITAL.—Honorary Radiographer.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Salary £25. Also Dental Surgeon. Salary 50 guineas per annum.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board and residence.
INDIA OFFICE, LONDON.—Eleven Commissions in the Indian Medical Service.
LONDON FEVER HOSPITAL, Liverpool-road, N.—Assistant Resident Medical Officer. Salary £150 per annum, with residence and board.
LONDON LOCK HOSPITAL, 91, Dean-street, Soho.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.
LONDON TEMPERANCE HOSPITAL.—Pathologist and Bacteriologist.
MANCHESTER, MONSALL FEVER HOSPITAL.—Senior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging and washing.
MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80, with residence, board, and washing.
METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Fitzroy-square, W.—Surgeon, Assistant Surgeon, and Anæsthetist.
MIDDLESEX HOSPITAL, W.—Registrar to the Cancer Wards. Also Scholar in the Cancer Research Laboratories. Salary of Registrar £40 per annum and of Scholar £60 per annum.
NORTHAMPTON GENERAL HOSPITAL.—Senior Resident Medical Officer, unmarried. Salary £120 per annum, with apartments, board, washing, and attendance.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician. Salary £60 per annum, with board, lodging, and washing.
NOTTS COUNTY LUNATIC ASYLUM, Radcliffe-on-Trent.—Medical Superintendent. Salary £600 per annum, with house, coal, light, washing, &c.
OLDHAM INFIRMARY.—Ophthalmic Surgeon. Salary 50 guineas per annum.
ROSS-SHIRE, PARISH COUNCIL OF KINCARDINE.—Resident Medical Officer and Vaccinator. Salary £105 per annum, with fees.
ROTHERHAM HOSPITAL AND DISPENSARY.—Senior House Surgeon. Also Assistant House Surgeon. Salary of former £110 per annum and of latter £80 per annum, with rooms, commons, and washing.
ROYAL LEAMINGTON SPA, BOROUGH OF.—Assistant Medical Officer of Health. Salary £250 per annum,
SOUTHEND-ON-SEA, BOROUGH OF.—Assistant Medical Officer of Health. Salary £250 per annum.
STIRLING DISTRICT ASYLUM, Larbert, N.B.—Third Assistant Medical Officer (female). Salary £100 per annum, with board, &c.
SUFFOLK, COSFORD UNION.—Medical Officer and Public Vaccinator for the Lavenham District. Salary at rate of £52 2s. per annum and fees.
SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.
VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Dental Surgeon.
WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, &c., 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £100 per annum, with residence, board, and washing.
WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Ophthalmic Surgeon. Also Pathologist.
WINCHESTER, CITY OF.—Medical Officer of Health. Salary £400 per annum.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Newtown, in the county of Montgomery.

Births, Marriages, and Deaths.

BIRTHS.

JOBSON.—On Dec. 29th, 1908, at Trelyon, Ilford, the wife of T. Battersby Jobson, M.D., of a daughter.
HOWELL.—On Jan. 2nd, at Queen Anne-street, W., the wife of C. M. Hinds Howell, M.D., of a son.
PURSER.—On Jan. 5th, at Maldon-road, Colchester, the wife (née Inglis) of Captain L. M. Purser, R.A.M.C., of a son.

MARRIAGES

WHYTE—MONFRIES.—On Thursday, Jan. 7th, at St. George's United Free Church, Edinburgh, by the Rev. John Kelman, D.D., George Duncan Whyte, M.B. Edin., D.T.M. & H. Cantab., Swatow, China, to Margaret Marion, eldest daughter of the late Alexander Monfries of Dundee and London.

DEATHS.

ARGYLL ROBERTSON.—On Jan. 3rd, at Gondal, India, Douglas Argyll Robertson, LL.D., M.D., F.R.C.S. E., of Mon Plaisir, St. Aubins, Jersey.
MOLE.—On Jan. 4th, at Callington, Robert Bissell Mole, M.R.C.S., L.R.C.P., aged 52 years.
SMITH.—On Jan. 1st, in London, Sidney Smith, M.D., M.R.C.S., L.S.A., of Mazagon, Bombay, in his 74th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SANITATION AND ANTI-MALARIA WORK IN SOUTHERN NIGERIA.

THE annual report concerning this colony states that throughout the year the clearing of bush around the settlements and the reclamation of swamp land in the neighbourhood of the various stations steadily continued, special attention being given to the reclamation of the unwholesome swamp areas in Lagos. A sewage disposal system for that town was inaugurated, consisting of the use of dry-earth pans with depôts in various places for the receipt of pans and the issue of earth. From the depôts the sewage is conveyed away by rail. Throughout the country sewage disposal is, on the whole, satisfactory, even in the small settlements, so far as the European quarters are concerned, and in the larger centres the natives are being taught cleanliness and obedience to sanitary demands in this respect, latrines being provided. The system in vogue, as in Lagos, is the dry-earth pan, with daily burial of the sewage in trenches in suitable areas, or, in some places, the emptying of the pans into the sea or central current of the large rivers near their mouths. A scheme of water-supply for Lagos town is receiving consideration. At Calabar the water-supply is satisfactory and allows of the abolition of tanks and gutters. Tanks and wells supply the water requirements of the country generally, but at a few stations there is good spring water. The main features of the anti-malarial work carried out at all stations are: the use of quinine as a prophylactic; the destruction of mosquito breeding-grounds and larvæ; the use of kerosene oil for collections of water which cannot otherwise be treated; the clearing of bush; the filling up of swamp land and surface depressions; the use of anti-mosquito wire gauze for rooms and houses; and the use of quinine prophylaxis among natives, which is gradually spreading. At the Lagos Observatory the mean temperature was 80·4°F.; the highest shade temperature was 96° in February and the lowest 68° in August. The rainfall at stations on the coast or at the mouths of the various rivers is heavier than in the up-country districts. More rain fell at Opobo than at any other station, the rainfall there totalling 216·46 inches. The lowest rainfall was at Ghaki, where only 32·82 inches fell in the year. The prevailing breeze blows from south to south-west, but during the harmattan, from the end of November to the beginning of February, a breeze blows in the early morning from a north-easterly direction.

A WARNING.

To the Editor of THE LANCET.

SIR,—May I ask, through your columns, medical practitioners who may be applied to for pecuniary or other assistance by a person calling himself "Dr. J. Backus Taylor, M.R.C.S., L.R.C.P." not to grant any such aid without first communicating with me? Medical agents should also guard themselves in a similar manner before placing the name of this person upon their lists for employment as assistant or locum-tenent and sending him to clients. There is a Dr. Backus Taylor upon the Medical Register, but from circumstances which have come to my knowledge it would be as well not to assume that the individual of whom I write is the qualified practitioner of that name in the Register. I shall be glad to afford any information to anyone applying to me either personally or by letter.

I am, Sir, yours faithfully,
A. G. BATEMAN, Gen. Sec.

Medical Defence Union, 4, Trafalgar-square, W.C., Dec. 31st, 1908.

RECURRENT DRUNKENNESS.

THE law as to dealing with such cases as that mentioned a short time since, where a woman had been brought up for nearly, if not over, 200 times for drunkenness, must surely be strengthened before long. A less extreme case where a woman made her seventy-first appearance before the magistrate occurred in Manchester the other week. The magistrate did what he could. He told her that the condition she had been getting into for years was a disgrace to human nature. If sober at the time of his address she would perhaps agree with him. She was sent to prison for a month. This punishment will neither deter nor reform, and the magistrate wished he could deal more effectively with such cases. The only treatment to do any good is to cut off "the drink," and this can only be done during detention.

PETROL SHAMPOO.

To the Editor of THE LANCET.

SIR,—Will any of your readers give their experiences of what is called the "petrol shampoo" at the hairdressers? Twice I have fainted under the process, but on neither occasion did this produce any surprise or alarm. Would any medical man explain? Is it the freezing of the head by the petrol or is it the fumes of the ether or of something added to the oil? If there is any risk why is it allowed? I have asked several people and find that fainting or semi-fainting is very common with this method of shampoo.

I am, Sir, yours faithfully,
M. G.

Dec. 26th, 1908.

*** We should like to hear of similar cases of fainting.—ED. L.

LONGEVITY AT BRIGHTON.

To the Editor of THE LANCET.

SIR,—A few months ago, through your courtesy, I was permitted to bring to the notice of your readers some statistics concerning the remarkable longevity of Brightonians. Last week Mrs. Sarah Greenum died at the Parish Infirmary, and if she had lived until June 16th she would have been 100 years of age. We may fairly, I think, add her name to the long and ever increasing list of Brighton's centenarians. Thomas Foster also died at Brighton last week, aged 97. On Tuesday the Brighton magistrates distributed the contents of the poor-box among 180 beneficiaries in ages ranging from 97 to 70, the age average of the women being 82 and 7 months and the men 80 and 7 months. At Hove 200 recipients, whose ages varied from 94 to 69, averaged 76 years. I may add that Jeremiah Simmons, the centenarian of whom I wrote to you, is still in good health.

I am, Sir, yours faithfully,
J. P. BACON-PHILLIPS.

Crowhurst Rectory, Sussex, Dec 26th, 1908.

THE SAILORS' FRIEND.

Miss Weston has received a letter from His Majesty the King saying that nobody is better aware of, or more thoroughly appreciates, the great work that she has done for the British sailors, and for their wives and children also, than His Majesty, and at the same time a signed photograph of His Majesty was sent to Miss Weston as a token of gratitude for her noble services.

THE INFECTIVITY OF GONORRHŒA.

To the Editor of THE LANCET.

SIR,—I shall be glad if any of your readers, specialist or otherwise, can inform me if in their experience or opinion gonorrhœa can be communicated during the stage of incubation from a man to a woman. During the period of incubation in the woman (11 days) her husband had connexion with her on two separate occasions and did not get affected. The woman's "friend" emphatically asserts that he had not gonorrhœa at the time of connexion but that it appeared two or three days after his illicit intercourse with the married woman.

I am, Sir, yours faithfully,
Jan. 3rd, 1909. GONOCOCCUS.

THÉLÈME.

To the Editor of THE LANCET.

SIR,—Are any institutions or brotherhoods known to your readers where a permanent and comfortable home in health or sickness would be afforded to a retired bachelor medical man?

I am, Sir, yours faithfully,
Dec. 29th, 1908. HOMO SOLUS.

MNEMONICS.

To the Editor of THE LANCET.

SIR,—In regard to the query of "Curious" in THE LANCET of Dec. 12th, 1908, I would state that if he will write to me I shall be glad to forward to him a copy of the *International Medical Magazine* for November, 1894, in which appeared an article by myself on some anatomical mnemonics. The article attracted some attention at the time and was quoted editorially by a number of papers and additional mnemonics to those cited by me were thus brought to light.

I am, Sir, yours faithfully,
HENRY W. CATTELL.

3709, Spruce-street, Phila., U.S.A., Dec. 21st, 1908.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 7th, 1909.

Date.		Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan.	1	30·60	S.	...	50	47	37	44	44	Foggy
,,	2	30·67	WSW	...	53	49	43	46	47	Overcast
,,	3	30·66	S.	...	50	49	46	46	46	Overcast
,,	4	30·70	S.W.	0·01	50	49	46	47	47	Overcast
,,	5	30·62	E.	...	52	41	41	40	41	Fine
,,	6	30·43	S.W.	...	50	46	37	39	41	Overcast
,,	7	30·32	WNW	0·01	60	45	38	40	42	Overcast

During the week marked copies of the following newspapers have been received:—*Exeter Flying Post, Liverpool Post and Mercury, Literary Digest (New York), Manchester Guardian, Daily News, Star, Yorkshire Post, Glasgow Herald, Pall Mall Gazette, Daily Chronicle, Hull Eastern Morning News, Sheffield Weekly Telegraph, Liverpool Mercury, Birmingham Post, Irish Independent, Scotsman, Army and Navy Gazette, Daily Telegraph, &c.*

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Herbert F. Waterhouse, Walter G. Spencer): at 5.30 P.M.

Papers:

Mr. E. W. Hey Groves and Professor Walker Hall: The Functions of the Colon in Relation to Colic Exclusion.

Mr. Edred M. Corner and Mr. Martin Huggins: The repeated Strangulation of an Obturator Hernia necessitating its Radical Cure; with Remarks upon Obturator Herniæ in general.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—H. Beckett-Overy, William J. Gow): at 7.45 P.M.

Short Communications:

Mrs. Florence E. Willey: Notes on the Histology of the Smaller Myomata.

Mrs. Stanley Boyd: The Remote Results and Post-mortem Findings Four and a Half Years after Operation in a Case of Abdominal Hysterectomy for Cancer of the Cervix followed by Vesico-vaginal Fistula.

Paper:

Dr. R. H. Paramore: The Rôle of the Perineal Body during Labour and the Conduction of Delivery in Relation thereto.

Specimens:

Mr. E. W. Hey Groves: (1) Carcinoma of the Ovary; (2) Chorion Epithelioma with Secondary Growths.

Dr. A. H. N. Lewers: (1) A Cystic Sub-peritoneal Fibroid with Unusual Relations; (2) A Large Retro-peritoneal Cervical Fibroid.

Miss Garrett Anderson: Primary Sarcoma of the Uterus.

Dr. Macnaughton Jones: Tubo-ovarian Cyst removed after previous Vaginal Drainage.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretary—Reginald Morton): at 8.30 P.M.

Discussion:

On the Value of X Rays in Diseases of the Digestive System, to be opened by Dr. A. E. Barclay, followed by Dr. Thurstan Holland, Dr. G. A. Pirie, and others.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Dr. C. Wall: Mediastinal Growths.—Dr. H. A. Caley: Some Principles of Treatment in Colitis.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Mr. Bland-Sutton: Thrombosis and Embolism after Operations on the Female Pelvic Organs.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Millbank, S.W.

WEDNESDAY.—5 P.M., Lt.-Col. C. H. Melville, R.A.M.C.: What can be done by Medical Officers of the Territorial Force in Time of Peace to Prevent Disease and to Further Physical Efficiency in Time of War.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Captain W. S. Patton, I.M.S. (King Institute of Preventive Medicine, Madras): The Parasite of Kala Azar and Allied Organisms.—Dr. Sandwith will show for Dr. Creswell (Suez): Jeddah Ulcer.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Surgical Cases. 12 noon, Dr. Low: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Saunders: Clinical.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Blood Examination in Tropical Diseases.

WEDNESDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.

THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Surgical Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Bidwell: Displaced Kidney.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Medical Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Armour: Clinical.

SATURDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson); X Rays. 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations (Mr. Carson). Clinics:—Surgical Out-patient (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture:—Mr. F. H. Wallace: On Acidosis after Anæsthesia, or So-called Anæsthetic Poisoning.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. H. W. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel). 5 P.M., Demonstration:—Dr. E. J. Squire, C.B.: Pulmonary Tuberculosis in Children (at the Mount Vernon Hospital, Hampstead).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—Dr. F. E. Batten: Myasthenia Gravis.

FRIDAY.—Dr. F. E. Batten: Paraplegia.

UNIVERSITY OF LONDON, Theatre of the Royal College of Surgeons, Lincoln's Inn Fields, W.C.

FRIDAY.—5 P.M., Dr. A. Keith: The Anatomy and Zoological Relationships of the Anthropoid Apes:—Lecture I.: The Distribution, Anatomy, and Relationships of the Gibbon.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture:—Mr. A. Lane: Fractures in Children.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (13th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

THURSDAY (14th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.).

FRIDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (16th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospital operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. II. of 1908, which was completed with the issue of Dec. 26th, were given in THE LANCET of Jan. 2nd, 1909.

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